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Editorial

CHICAGO, THE MEDICAL CENTER OF THE WORLD

The Chicago Medical Society has the opportunity of a lifetime at hand. If taken by the proverbial fore-lock the city can be made the medical center of the world.

Work qualifying the city and its environs for this distinction is performed hourly all about us. Neglect to let others know of our capacities and performances will result in Chicago's slipping into a mere sub-station for outlying physicians to come for post-graduate labors. Instead of being the medical center of the world, Chicago will soon cease to be even a rival for this supremacy in the United States, unless some action is taken.

The Chicago Medical Society should assume responsibility of cooperation and organization between the profession, the schools and hospital and affiliated institutions to the end that this compact unit will be a foreful lever to bring about the "rendering unto Caesar of the things that are Caesar's."

Chicago should be the logical city for visiting physicians to come for supplemental study. The population is large. The city is beautiful.

There are three large medical schools with a wonderful competent and efficient teaching staff. Here are all the ingredients. What is needed is the mortar and pestle to mix them.

It would seem feasible for the Chicago Medical Society to advertise in the Journal of the American Medical Association that v i s i t i n g physicians will be welcomed from everywhere, and that the Chicago Medical Society will assist such visitors with their post-graduate work. Also, receipt should be had through the offices of the society of notices of all clinics, of all work being done in colleges, in hospitals and in private clinics, so that this information might be bulle-

tined for the out-of-town doctors and for members of the local society.

Co-operation from the institutions and the individuals, if organized and distributed properly, will go far towards placing Chicago at the head as a teaching center.

Another progressive step would be the organization by the Chicago Medical Society of the professional labor done in Chicago so that our own members would have opened to them diagnostic and treatment clinics as well as especial clinics. In this way Chicago physicians themselves will build up even better physicians and surgeons.

This, when analyzed, would appear to be indubitably the inevitable and only way in which to overcome the propaganda of various cults and isms, and the so-called practitioners of bloodless surgery and medicine.

Along with post-graduate work there would run a bi-monthly diagnostic clinic held on the south, the west and the north sides of Chicago under the auspices of the Chicago Medical Society. Our members would gain greatly therefrom.

It rests with Chicago to put this great undertaking where it belongs on a plane of established success that will make Chicago a Medical center of admiration for the whole world.

These views are expressed for the purpose of creating discussion with the possibility in view that good may arise therefrom. Will those who are interested in the idea please place themselves on record by comment either favorable or otherwise?

STATE PRE-EMPTION OF PROFESSIONAL PRIVILEGES AND ECONOMIC FACTORS AFFECTING MEDICAL EFFICIENCY

Paternalization and Sovietization of the country will come at a rapid rate and submerge the United States with the overthrow of the republication form of government and its replacement with a soviet despotism or political paternalistic machine if it is passed as is advocated in the national legislature and in various state legislatures. The Harrison Drug Act was the opening wedge and the gash has been followed up with excellent soviet leverage for paternalistic control. New York state has had the bitterest fight because the fight was waged most openly. Encouragement there lured the bolshevists to transfer activities to Washington. There the situation gets dangerous. The aim of the uplift propagandists and payroll brigadiers is to deprive the individual of his individuality and to turn his personal privileges into communal joy ride. The state steps in and makes of itself, father, mother and Babe Belle of every household. The church is a bad place for the bolshevists to start his debauchery. The church deals with the spirit. But as medicine stands next to the church, as medicine deals with the body and as bolshevism stands rooted in the physical, with sensuality one of its illy masked mainsprings, what more than that bolshevism should strike through man's tenderest spots, his mortal ailments. The ancient euthanasiasts have nothing on the bolshevist.

The first step in this insidious campaign has been to lure the state into pre-empting professional privileges. In other words, telling the doctors how to care for the sick; in other words —though it has not come to this openly yet—let us suppose Peter Pinker has the stomach ache; he needs Epsom salts and mustard plaster. But when Dr. Smith starts to prescribe this he finds he cannot. Mustard plasters beget a desire for heat when you are cold. Epsom salts are habit-forming—by their use constipation is induced. So Peter cannot have his plaster nor his physic. There is a statute against it. That statute was lobbyed through an apathetic legislature by Tom Tuttle who made his money in shady hotels and saloons; George Gettit, who has wealth from a loan bank, and Martin Mettel, who wants to be Senator next year and has grabbed up all the traction systems between Chicago and Cairo. Peter can't have his physic but he can go home and go and have a nice nurse sent to him by the state bureau and the nurse will tell him to swallow pink tea and rub his feet. She knows more than the doctor does anyway because she only studied two years and the doctor studied for ten years and he got tired remembering long before he did. Furthermore Peter won't have to pay for his nurse. But a woman who scrubs floors down in the Ghetto and a stenographer with a mother and a little sister to support and all of them need shoes and a man with a sick wife, who lives in Decatur will all chip in and help pay the tax that pays the nurse who takes care of Peter and keeps him away from his physic and his plaster. All of which sounds like Billy Sunday

on the rampage. But it is not. Rather, merely a direct visualization of what is coming to the citizenry and the physician if state medicine, compulsory health insurance and all the rest of it is dosed out to a suffering community of tax payers. Look at legislative records and learn a little bit about what is going on.

Already the state is running venereal disease clinics. There men who are unable to pay for this expensive but necessary treatment and pauper women of ill-balanced moral sense are relieved of their menacing attributes towards the community. The medical grafter who is the bane of all clinics because he could pay if he would, but prefers to get his health at the expense of somebody else, can get rid, without financial trouble, of the results of vice for which he probably did pay a good round sum to some light o' love in a red light resort. The state is putting a premium on vice and taxing the innocent to pay for it.

The state of course would be busied if it would tend to its own dooryard and let professional privileges of the individual alone. Surely a man who gives his life to his profession deserves the right to get a living wage from his skill instead of being a pre-empted claim for the political appointee.

However, when state business runs slack the professional politician can pauperize and bring under his thumb an educated class when he systematically undermines the sources of revenue of the legitimate doctors whether by state gratuities or by the admission to fields of medicine of such fakes as chiropractics, naprapaths, osteopaths and all the rest of the unlettered but shrewd dollar-chasing crew. False hopes and fairy tales are best with the uplifters. "It is natural for man to indulge in the illusions of hope," so says Patrick Henry. The fakes hand out plenty of hope built on illusion of many colors. They weave the rainbow and find the pot of gold at the end of their patient's pockets, and a prosecuting attorney hates worse than poison to mix up with 'em.

Doctors of course could fight the politicians and get a little self-protection if they would organize as the fakes do. Get down to the records of the Constitutional Convention held in Springfield, Illinois. Look at the statute books and see how charlatans are encouraged, nurtured and pampered by the same commonwealth that has rules, regulations and don't-you-dares that cause a legitimate honest physician to thank Heaven that he is permitted to chew food with his own teeth.

ENORMOUS INCREASE IN HOSPITALIZATION A MENACE AND INJUSTICE TO THE SICK

Another Loop-Hole by Which State Medicine Can Enter the Body Civic

Ease of hospitalization leads doctors to nurse still another vicious circle of influences tending to pave the way for the encroachments of state medicine.

So great has been the increase in hospital charges that for the patient of moderate income an illness of two weeks' duration is about as long as he can pay for. Ultimately this condition will engulf the profession. From seventy-five to eighty-five per cent. of the ailments of the human race are of a minor nature.

For such afflictions people look for medical attention in their homes instead of at institutions and this is the proper perspective.

Any attempt to evade home care for this proportion of less serious illness is direct nourishment for the already too generous growths of cults and 'isms. *Further it drives the sick to seek state aid,* and plays the handmaid for the establishment of state medicine.

Charges for drugs and accessories, comparatively large though they be, are as nothing in the face of hospital expense. Reviewing the record of a few short years brings an appalling survey.

Take for instance one New York hospital, where in 1913 the charge for the operating room was $3. In 1922 the cost had increased to $15 while the special nurse's fee was $70 weekly, exclusive of her board bill of $14 weekly. In another hospital the price increase from 1912 to 1922 was from $5 to $15 for the room and from $25 to $70 for the nurse. The gist of the matter has well been said to be that regardless of social or financial standing the unfortunate sick person must pay $35 and upwards for a fair private room, $50 to $70 for a special nurse, $15 for the operating room, and $10 to $14 for board, or a total of $134 for the first week's service, which, if matters go well, may be reduced for the second week to $119. Such expense spells disaster for the average citizen.

Here is where the astute physician steps in, and even with entailed extra inconvenience for

himself, such as preparation of dressings and similar supplies at home will make this sacrifice for the sake of the patient's well-being.

As the patient is often too proud and too sensitive to speak of such things, suffering from such a financial onslaught actually augments the invalidism.

In the federal public health service the cost per patient for hospital attention is approximately four dollars per day and in civilian institutions the cost is from six dollars per diem to $50 per week, with an extra $50 perhaps for a special nurse, and still extra fees for laboratory services.

All this before the physician receives any money. Small wonder that "new thought" and "Eddyism" or "electrocute yourself at home" grows more popular daily.

There is only one other alternative. This is to patronize the institutions supported by the tax-payers, and to make the citizenry feel that *cost of illness should be borne by the state.*

A heavy price, is it not, to be paid for the power and glory of the name of being so busy a doctor as to keep "a hospital filled with patients." Some doctors have this error in their ways. Better less self-exploitation through a hospital corps of patients, and a firmer hold upon the genuine needs of the vast majority of the people. For some illnesses nothing compares with hospitalization. To demand this expensive treatment for minor ailments is ridiculous and dangerous.

DOCTORS WHO SERVED ON EXEMPTION BOARDS IN WORLD WAR

Attention—Illinois Doctors

After a year's effort through military channels, both in Springfield and Washington, the Committee on Medical History of the Illinois State Medical Society has succeeded in getting what purports to be a list of the physicians that served on the various exemption Boards.

Investigation shows many errors in the personnel of the Boards, and in order to have the data as accurate as possible for the forthcoming issue of the Medical History we are asking that every physician that served on the Exemption Boards, Appeal Boards, etc., during the late War, send their name, address and the number of the Board on which they served, to Colonel P. J. H. Farrell, Committee on Medical History, 25 E. Washington Street, Chicago, Illinois.

SUBSCRIBERS TO THE LAY EDUCATIONAL FUND

Since the September issue of the Journal was published, the following doctors have subscribed to the Lay Educational fund:

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E. P. Spitze, East St. Louis.
Wm. E. Walsh, Morris.

Subscriptions thus far received have been directly acknowledged by the Lay Educational Committee, as well as by publication from month to month in the Journal. In the future only the previous month's subscriptions will be acknowledged in the Journal.

MAKE CHECKS PAYABLE TO THE ILLINOIS STATE MEDICAL SOCIETY

Name.....M. D.
Street .....
City..... County.....

Sign the above pledge card, make out a check payable to the Illinois State Medical Society and mail both in an envelope addressed as follows:

From
.....
.....
.....

ILLINOIS STATE MEDICAL SOCIETY,
c/o Cashier, Sheridan Trust and Savings Bank,
4738 Broadway, Chicago, Ill.

Below is a list of subscribers from Chicago and Cook County to the Lay Educational Fund as per letter sent physicians early in April soliciting funds and cooperation.

GETTING OUT THE JOURNAL

Getting out a bulletin is no picnic.

If we print jokes, people say that we are silly.

If we don't print them, they say we are too serious.

If we print original matter, they say we lack variety.

If we publish things from other papers, we are too lazy to write.

If we stay on the job, we ought to be out hustling news.

If we are hustling news, we are not attending to business in our own department.

If we don't print all contributions, we don't show the proper appreciation.

If we do print all contributions, the paper is filled with junk.

Like as not some one will say we swiped this from an exchange. So we did.

AMERICAN COLLEGE OF RADIOLOGY AND PHYSIOTHERAPY

HOTEL LA SALLE, CHICAGO

OCTOBER 19-22, 1925

PRELIMINARY PROGRAM

Monday, October 19, 1925

CLINICS

Wesley Hospital—
"Industrial Physiotherapy"...Paul Magnuson, M.D.
Cook County Hospital—
"General Physiotherapy".....J. S. Coulter, M.D.
"Electrocoagulation of Malignant Tumors".....
.....Frank J. Novak, Jr., M.D.
"General Physiotherapy".....Disraeli Kobak, M.D.
American Hospital—
"Cancer Clinic".....T. Howard Plank, M.D.
Hollender and Cottle Clinic—"Physiotherapy in Eye, Ear, Nose and Throat Practice".....
A. R. Hollender, M.D., and M. H. Cottle, M.D.

Tuesday, October 20, 1925

Registration
Business Session
Presidential Address—"The Past, the Present and the Future"—Curran Pope, M.D., Louisville, Ky.
"Status of Radiotherapy in Otolaryngology,"
Ira O. Denman, M.D., Toledo, Ohio, Otolaryngologist.
"Radium Therapy,"
C. W. Hanford, M.D, Chicago. Consulting Radium Therapist Cook County Hospital.
"Radiation Therapy,"
J. R. Ranson, M.D., Denver Colo. Formerly Consulting Physician Colorado Radium Company.
"The Radiological Diagnosis of Early Pulmonary Tuberculosis,"
Roland G. Breuer, M.D., Norton, Kans. Assistant Physician Kansas State Sanatorium for Tuberculosis.
"Artificial Light Therapy in Tuberculosis,"
Edgar Mayer, M.D., Saranac Lake, N. Y. Physician Saranac Lake Sanatorium for Tuberculosis.
"Quartz Light Therapy in Otolaryngology,"
Roy A. Barlow, M. D., Madison, Wis. Otolaryngologist University of Wisconsin.
"Water as a Therapeutic Agent,"
Charles E. Stewart, M.D., Battle Creek, Mich. Physiotherapist Battle Creek Sanitarium.
"Therapeutic Exercise—A Neglected Method in Physiotherapy,"
J. C. Elsom, Madison, Wis. Physiotherapist University of Wisconsin.

Tuesday, October 20, 1925

EVENING SESSION

Subject to be Announced,
W. T. Bovie, Ph.D., Professor of Biophysics Harvard Medical School.
Fellowship Gathering and Smoker.

Wednesday, October 21, 1925

"Diathermy in Gonorrheal Diseases of the Male,"
Damon Brown, M.D., Madison, Wis.
"Diathermy in Gynecology and Genito-Urinary Practice,"
B. H. Hager, M.D., Madison, Wis. Urologist, University of Wisconsin.
"Diathermy on Medical Kidney Disease,"
Gustave Kolischer, M.D., Chicago. Associate Professor Genito-Urinary Diseases. Post Graduate Medical School.
"Bladder Tumors as Treated by Thermo-Electric Coagulation,"
B. C. Corbus, M.D., Chicago. Inventor of Thermaphore for Treatment of Endocervicitis by Diathermy. Author of Book on this Method of Treatment.
"X-Ray Therapy Twenty Years Ago,"
William Allen Pusey, M.D., Chicago. Past President American Medical Association. Professor of Dermatology, University of Illinois Medical School.
"Newer Methods in the Treatment of Defective Hearing,"
M. H. Cottle, M.D., Chicago.
"The Use of the High Frequency Currents from the Surgeon's Standpoint,"
A. David Willmoth, M.D., Louisville, Ky.

6:30 P. M.

Annual College Dinner—Educational Program,
Wm. Allen Pusey, M.D., Past President American Medical Association.
Maurice Fishbein, M.D., Editor Journal American Medical Association.
D. J. Davis, M.D., Professor Pathology and Bacteriology, University of Illinois Medical College.

Thursday, October 22, 1925

"Diathermy in Infections,"
W. B. Chapman, M.D., Carthage, Mo. Vice-President American College Radiology and Physiotherapy.
"The Treatment of Non-Union or Delayed Union of Bone and Bursitis,"
F. B. Granger, M. D., Boston, Mass. Radiologist and Physiotherapist, Boston City Hospital.
"Obervations on Physiotherapy Abroad,"
Disraeli Kobak, M.D., Chicago. Attending Physiotherapist Cook County Hospital.
"Electrothermic Methods in Surgery,"
Wm. L. Clark, M.D., and H. H. Bass, M.D, Philadelphia, Pa. Dr. Clark is a pioneer in the use of electrocoagulation in surgery.
"Endocrines and Physiotherapy,"
Maxmilian Kern, M.D., Chicago. An internist of wide experience in endocrinology.

R. W. FOUTS, Secretary, Omaha, Neb.

LAWLESS LAW ENFORCEMENT

Recently the collector of internal revenue at Nashville refused to register under the Harrison Narcotic Act twenty-five physicians who were under indictment for alleged violations of it. In 1922 a court of competent jurisdiction decided that a collector had no right to refuse registration under such circumstances, and the Bureau of Internal Revenue took no appeal from that decision. At that time the United States District Court for the Northern District of Georgia* thus disposed of the collector's claims:

"But to prohibit a practicing physician from prescribing narcotics unless he registers, and then to refuse to register him, would, to that extent, be to prohibit and regulate his practice of medicine, a thing within the province of the state, and not of the United States, and in contradiction of the revenue purposes of the act. . . . The determination of who may properly practice medicine or otherwise dispense drugs belongs to the agencies of the state. The collector must register on proper application all who are by the state law permitted to dispense them. He has no discretion in the matter."

In the present instance, the United States District Court of Nashville promptly arrived at a similar conclusion and directed the collector to register the Tennessee physicians. For the trouble, expense and undesirable publicity incident to the court proceedings, however, these physicians have no redress. Available reports do not disclose the nature of the offenses with which they were charged, the character of the evidence on which they were indicted or their professional standing. Their guilt or innocence can and should be promptly settled in an orderly course of judicial procedure. If they are convicted, lawful penalties can be enforced. But as was made perfectly clear by the court in the Starnes case cited, and as should have been known to the collector of internal revenue at Nashville, these matters have nothing to do with registration under the Harrison Narcotic Act. Referring to an order issued by the Commissioner of Internal Revenue to withhold registration from indicted or convicted persons, in that case the court said:

"The instruction of July 26, 1921, was not made by 'the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury,' and so (was) not authorized by the act; but, if it were, in attempting to make a pending charge of crime a ground for refusing registration, it would be unsustainable. Even after the conviction, to do so would add a deprivation of vocation to the punishment fixed by law. Prior to conviction there is only an accusation of which the registrant is presumed to be innocent."

The decisions of the courts in the Georgia and Tennessee cases do not leave collectors of internal revenue helpless. They merely refer them back from lawless methods to lawful ones. If a collector has evidence that a physician has violated the Harrison Narcotic Act or the narcotic act of any state, he can institute prosecution in the proper federal or state courts. If a collector has evidence that a physician is unfit to practice medicine, he can file complaint with the licensing board of the state by which that physician was licensed. If the collector regards these measures as inadequate, he can appeal through proper channels to the proper legislative bodies to amend or supplement the Harrison Narcotic Act or the medical practice or narcotic acts of the state.

The law, however, does not authorize a collector to use his own judgment to remedy what he may regard as defects in federal and state legislation. Such a procedure is not merely a trespass on the rights of the physician; it is an attempt unlawfully to infringe on the constitutional rights of the state itself. Such occurrences tend to break down the harmonious relations between the federal government and the states and to increase the odium already attached to the word "bureaucracy." The Harrison act penalizes the physician who fails to conform; what redress does it offer him when he loses time, money or professional standing through the misguided autocratic methods of those whom the government selects to enforce it?—*Jour. A. M. A.*, Aug. 29, 1925.

*Starnes v. Rose, Internal Revenue Collector 282 Federal Reporter 336.

COMMUNIST CORRUPTION OF CHILDREN

The following extracts are from *"Manual for Leaders of Children's Groups,"* by Edwin Hoernle, published by the Executive Committee of the Young Communist International:

"The Communist Children's Groups must be neither party kindergartens nor children's homes. They must be live organizations of the children of the workers, organizations to counteract the poison of bourgeois 'education.'

"The first essential in the work of the groups is the confidence of the children in the leaders. Without this the work will be hindered by the egotism and stubbornness which have been fostered in the children by the bourgeois schools."

"How can we arouse and develop this spirit of simultaneous independent initiative and communist solidarity?"

"The organization and leadership of the children's groups is a task belonging particularly to the Young Communist League."

"(a) They adapt themselves more easily than the adults to the peculiar features of the children's psychology.

(b) They are not so much inclined to the 'non-political and humanitarian' as are the adults.

(c) They understand better than the adults how to build up the activities of the Communist Children's Groups so that these become natural preliminary stage of the Young Communist Leagues, preparing the children to enter the League."

"We assert that the formation of the Communist Children's Groups is not primarily a problem of pedagogics. It is a question of the class struggle, a political task, a struggle to liberate the proletarian child from the mental servitude imposed upon him by capitalism;

it is the enrollment of the child into the ranks of the revolutionary working class."

"The first requisite is that the education shall be revolutionary and of a communist nature. We have—and we say it with pride—in the Young Communist Leagues communists in the best sense of the word, and being communists they are naturally better qualified to conduct this work of communist education."

"HOW DO WE BEGIN?"

"Nothing in the world is easier than to attract children. Where there is a will there is a way. Youths, boys and girls of the Young Communist Leagues, go in a group to the places where children are—on the streets in the evenings, in parks, public playgrounds, or at some outdoor celebration. They watch the children at play and gradually and tactfully join in their games, perhaps teaching them a new circle game which all can join. Other children are attracted and approach to play the new game. After a time when the children are a little tired—'Shall we learn a new song?' At first the little ones may be suspicious, then they will be shy, but eventually they will all join in 'The Red Flag,' 'The International' or some other revolutionary song.

"Or else—'Will you play with us again? We poor children have to do without so many things the rich children have—it is so nice when we can all play together.' Meanwhile we can distribute our papers, inform them that this is the children's paper and that there are children's meetings. 'Would you like to come?'"

The pamphlet goes on telling how to excite envy and giving examples of types of mendacious suggestions that they think will be influential with the children, and adds:

"Thus we neither 'teach' them Communism nor ask them to learn ready-made lessons—we only lead and inspire them so that they become communists of their own accord. For children can be communists! The distribution of their paper among other children is communist propaganda—sometimes even a militant activity."

"Blind respect for the adults is one of the first things to be removed in communist education.

"There will be another storm of indignation over this. 'The Communists want to destroy the home sweet home and the relations between parents and children.' As if any such thing as a real home existed in the working class! The family as 'home sweet home' was long ago abolished by capitalism. The proletarian family is nothing but a common household for eating, sleeping and living."

Then on page twenty-two and twenty-three follow instructions of how to incite children against their teachers and parents; of how to make them rebels against authority and to get other children to support them in their rebellion; of how to get them to support any normally unfit teacher who is dismissed for cause, etc. Then on page twenty-six:

"We are not dispensers of 'sweetness and light' to the unhappy and the suffering children of the proletariat. On the contrary, we seek to arouse and waken their class consciousness and their revolutionary instincts. We meet the immediate demands of the children for clothing and food with the formulated demand: Compulsory free meals for school children! Compulsory free clothing for school children!"

And on page twenty-seven the pamphlet states that children are to be told that religion is the tool of the rich against the poor and explains how to bring religion into contempt without logical opposition to it. After that, under Communist games, etc., it explains how children's play can be used as instruction in Communist methods—how their games can be games in evasion of law and in law defiance and adds:

"The Communist Children's Groups are a class organization, and they do not pretend to be anything else, existing for the purpose of training the children for the class war."

Then on page thirty-nine, speaking again of games:

"Hide and seek can be made a game dealing with illegal communist work; Comrades crossing a frontier with literature without being caught; The Fixing of Posters without being detected; Escapes from prison, and such other things as the leaders may find to interest the children. The older children will enjoy staging a scene from the fights of the Russain Red Army, in which some of them take the part of the White enemies; or scenes from the French revolution, or from the Chartist movement in England."

"When the children grow tired and want to rest from these vigorous activities they will enjoy listening to bits of history of the struggle of the working class, stories of the illegal work of the communists, the escapes of revolutionists, or stories of their capture."

The pamphlet continues and adds: "Let us rid ourselves of all pacifist nonsense and sentimentality."

Thus the children are to be made Communist agents in the Communist striving for civil war and the overthrow of our country and civilization by force.

And yet many pacifist organizations play the Communist game, endeavoring to bring about that complete disarmament and physical helplessness which the Communists so much desire as the necessary step in their seizure of power for themselves and the erection of their own dictatorship in the place of orderly and representative government.

FRANCIS RALSTON WELSH.

RADICAL WOMAN ON LEAGUE COMMITTEE

Eleanor F. Rathbone, one of the authors of the vicious, Socialist, "Endowment of Motherhood" book which was exposed and denounced on the floor of the United States Senate, June 29, July 21 and July 23, 1921, and who was made chairman of the standing committee on "Maintenance of Motherhood and Treatment of Illegitimate Children" of the International Woman Suffrage Alliance, in November, 1920 (two weeks before the great American woman's drive, led by Mrs. Florence Kelley, Socialist, translator of Marx and Engels, etc., for the Maternity Act), has been appointed as a "representative of women" on the League of Nations Advisory Committee on Traffic in

Women and Protection of Childhood! What a combination!

The *Woman Citizen*, April 18, 1925, rejoices in the appointment of this extreme radical as follows:

"The great international organizations of women are happy over their success in getting a representative on the League of Nations Advisory Committee on Traffic in Women and Protection of Childhood—the half-old, half-new committee set up at the last Assembly. The women's organizations . . . considered it peculiarly fitting that they should be allowed to choose some one to represent the most fundamental concern of women —children's welfare. On this point, the women won, and Miss Eleanor Rathbone has been appointed—a nominee of the International Council of Women, the International Woman Suffrage Alliance, the International Federation of University Women, the International League for Peace and Freedom, and the World's Y. W. C. A. More and more the influence of these international women's organizations is being recognized. It is a fine thing for the world to have the conscience of its best womanhood organized and effective."

And thus is celebrated the appointment of one of the most radical women on earth—a woman who believes in *government* "maintenance of motherhood," and in wiping out the distinction between legitimate and illegitimate children—to a position of world influence!

The Rathbone book, "The Endowment of Motherhood," is exceeded in its radicalism only by Alexandra Kollontay's "*Communism and the Family.*" It not only advocates *substitution of the State for the father* in the maintenance of mothers and children, and sneers at the father *"as a middleman,"* but it proposes to put mothers "on the pay roll of society" so that *strikes* can be carried on more effectively—by irresponsible men—and to promote the *"socialization of industry."*

Under the sentimental cover of the pretty title, "The Endowment of Motherhood" (published by B. W. Huebsch, New York, 1920), is the most brutal doctrine of Communism and Socialism—socialization of motherhood and childhood.

Among other equally radical doctrines in "The Endowment of Motherhood" are these:

"If mothers are going to get on the pay roll of society at all they will have to be willing to begin at the bottom.

"In the event of wage disputes the workers will know that a large number of their dependents are secure and that the call on *strike* funds will be less. . . .

"Family endowment would be of immense advantage in the struggle for higher wages. . . .

"To those who are looking to the *socialization of industry* in one form or another, we would point out that a scheme such as the one advocated here will be found essential.

"The State will have to deal increasingly with the mother directly and less through the agency of the *father as a middleman.*"

This radical book was enthusiastically reviewed under the title, "Wages for Mothers," in the *Suffragist*, November, 1920, but American enthusiasm for the doctrine was considerably dampened (*or at least concealed*) after the demonstration in the Senate, by Senator James A. Reed, in June and July, 1921, that it was *"the essence of Communism."* It should be stated here that Senator Reed *was speaking on the Maternity Act*, and of course his opposition to the League of Nations had nothing to do with his criticism of that doctrine, as he had no means of knowing, *in 1921*, that one of the authors of that vicious, Socialist book, which he held up to the attention of the Senate on three occasions, would, *in 1925*, be chosen by "great international organizations of women" to represent them on a League of Nations Committee. When the Senator discovers the choice of these international women of a world representative, however, he will hardly be "converted" to the League of Nations thereby.

Friends of the League of Nations must feel mortified, indeed, at the glaring inconsistency of the League in attempting to interfere in the education of youth, child labor legislation, etc., when it is most solemnly bound to respect "the territorial integrity and political independence" of nations and to *keep out of their domestic affairs!*

The "international women" are doing the league a distinct disservice in trying to use it as an engine of pressure on their *own* governments for social legislation which their *own* governments will not enact.—*Woman Patriot.*

VERDICT OF GUILTY

In Winnipeg a Christian Scientist practitioner was found guilty, by a jury, of manslaughter because he prevented the administration of antitoxin to a child suffering from diphtheria. Absent treatment by prayer did not save the child's life. The defense was that the prosecution had not proved that the practitioner had refused to permit antitoxin to be administered. The jury took only a short time to find a verdict of guilty. —*Medical Sentinel.*

THE CHASTISEMENT

Harsh punishment inflicted in anger relieves the parent's overcharged mind, but in most cases it serves no other useful purpose, and, in the last analysis, often does irremediable harm. Spanking and whipping are the easiest forms of punishment and the least intelligent. The parent, angered by something the child has or has not done, vents his own fury in this way. There is little logic in such punishment, and less justice. The chastisement is not measured to fit the scale of the offense; its severity depends largely on the physical strength of the parent and the degree to which he is incensed. The animal rage which it creates in the parent weakens his self-respect, and the majority of parents are heartily ashamed of themselves after such scenes with a child. It is not conducive to comfort to know that simply because one is larger and stronger one has permitted himself to inflict brute force on a child.—Brown, Alan: The Normal Child, New York, the Century Company, 1923.

Correspondence

IRISH DOCTORS UP IN ARMS AGAINST GOVERNMENT'S PROPOSAL

Chicago, Ill., September 25, 1925.

To the Editor:

The enclosed clipping from the *London Times* explains briefly the Trinity Medical College (Dublin) situation, at about the time I left Ireland. Most of the doctors think that the Free State Government are making a serious mistake.

The matter was not settled definitely when I left.

Trinity College is a wonderful institution in most every respect and ranks with all of the leading universities of Europe.

A. M. HARVEY, M. D.

The following from the *London Times:*

STATUS OF IRISH DOCTORS

THE COMING SENATORIAL ELECTIONS

(From Our Own Correspondent)

Dublin, Aug. 18.

The decision of the Free State Government to create a special Medical Register for the 26 Irish counties under its own control, continues to monopolize public attention. Throughout the country the whole of the medical profession, irrespective of political opinion, is up in arms against the Government's proposal and Dr. Hennessy, who is the Irish medical secretary to the British Medical Association, and also a member of the official Government Party in Dail Eireann, has made a public protest against it, declaring that its effect will be to place Irish doctors in the position of "quacks."

The matter receives added interest by reason of the elections for the Senate next month. Seventy-six candidates are going forward for 19 vacancies, and the medical profession will probably mobilize all its forces in order to secure the return of those persons who will not consent to the Government's latest move. The Senate can hold up the proposal for a certain length of time, but it has a far stronger weapon in the referendum. Under the Free State Constitution the Senate can refer an issue of this kind to the popular vote, and there is little doubt that public opinion in its present temper would support the medical profession.

The position of the Irish medical schools will be very serious if the British Medical Register is lost. During the last 20 years the number of foreign students, notably of South Africans from Stellenbosch and other African universities, has been increasing steadily, and now Dublin rivals Edinburgh as a cosmopolitan medical school. If Trinity College is deprived of the privileges of the Medical Register, these students will undoubtedly transfer their allegiance to Belfast or some other university where they wll be subject to no restrictions. The South African students say that if they cannot have their names on the British Medical Register there is no point in their coming to Europe to study. The national university also has a large number of foreign medical students, including Egyptians and African natives.

Almost without exception these students will be lost to Dublin if the Government's plan is carried into operation, and there is a danger that the mere threat of a separate Medical Register may prevent the matriculation of new arrivals at the beginning of the coming academic year.

YOU'VE ALWAYS GOT TO SMILE

BY JAMES J. MONTAGUE

You got to keep on smilin'
However hard the way,
Altho you're shy the cash to buy
Your three square meals a day.
You may have ketched the measles
Or else, perhaps the mumps;
But just the same you must be game
An' never get the dumps.
A glum an' gloomy spirit
The brightest life kin spile
No matter what complaint you've got
You've always got to smile.
You got to keep on smilin'
An' never heave a sob
Or pull a moan or spill a groan
When you have lost your job.
If wife and kids have left you
Don't never shed a tear;
Be gay and glad as ef you had
A heart plumb full of cheer.
Remember, livin' single
Ain't sech an awful trial—
The clouds you'll find is silver lined
If only you can smile.
You got to keep on smilin'—
There's no sech word as fail—
Tho by mistake the laws you break
And get shet up in jail.
An' even ef they hang you,
The rope won't hurt you long,
So while you wait to meet your fate
Just sing a little song.
Keep readin' smiling' poems;
They make hard luck worth while,
Our recompense for lackin' sense
Is learnin' how to smile!

In *Philadelphia Evening Bulletin.*

A NEW ONE

Mule—What are you?

Ford—I'm an automobile.

Mule—Gwan! If you are an automobile I'm a horse.

—Times of Cuba.

Washington's cabinet had four members.

Original Articles

PRESIDENT'S ADDRESS*

L. C. Taylor, M. D.
SPRINGFIELD, ILL.

In choosing a subject for presentation at an anniversary meeting, such as is being held at this time, I feel it is safe to assume that medical topics are amply covered in your excellent program and that we may profitably give our attention to some of the present and future problems confronting the profession. Volumes sufficient to form an extensive library have been written on medical history and will continue to be written until the intricate problems of the present time have been solved. Groping in darkness, as to the origin of disease and with limited knowledge as to the physiological laws, it is not strange that imaginary curative agencies without number have found their way into the literature. The slender threads of truth contained in many grotesque methods of treating the sick have been recognized by the medical profession for over a thousand years, but the basic principle in a majority of these so-called "cures" remain the same. They are psychic in character and will continue to attract the attention of those who prefer the diversion of the occult and mysterious to the study of established scientific casts. Approaching the present period, when many new methods of treatment have sprung into existence, one thought is conspicuous in the discussion of this subject by physicians, and that is the lack of appreciation of our position by the public. Unfortunately, many people in all walks of life see nothing in our attitude, excepting personal interest.

In many of the contributions to medical journals and in discussions at meetings of national boards of examiners and teachers in our great medical institutions, there appears occasionally the suggestion that intolerance by the profession of new ideas has led to the impression that our attitude on many of these subjects is prompted by prejudice. Twenty-seven years of personal experience on my part fails to confirm that attitude—Whatever errors may have occurred in the earlier history of medicine is only in keeping with the intellectual development in the passing centuries. This reference is only to emphasize the responsibility of the profession to the sacred memory of those whose contributions to science will be as enduring as history. Toward the close of the eighteenth century, people were dying in Europe at the rate of about four hundred thousand annually from smallpox. The discovery of vaccination reduced, in a short time, this appalling mortality to a negligible number, and yet, after the lapse of more than a century, we are frequently confronted with the humiliating necessity of defending the efficacy of this immunizing process before legislative committees and in the courts. Fortunately, municipalities, schools, industrial organizations, etc., have in a great measure lightened the burden, and the etiology of many diseases will no longer be a subject for serious discussion. Following the divergence of opinion above referred to is the developing discussion in reference to the length of time and the character of the course necessary to fit one to sit at the bedside of the sick. The time devoted to ultra technical work, which would be made use of to only a limited degree, if at all, in a general practice is forcing itself upon the attention of those responsible for medical teaching of the future.

Men with long experience as instructors in our great educational centers have for the past two or three years been decrying the disappearance of the family physician and yet bestowing upon them a high measure of praise as reliable general practitioners. That apprehension on this point is not confined to this country alone, is emphasized by Sir William Osler when, in one of his last utterances, he appealed to the profession to get "Back to the bedside." Seven years of experience in conducting practical examinations of between three and four thousand applicants for licensure has demonstrated to me that Professor Osler's admonition to get "Back to the bedside" can be made effective by giving less attention to the training of technicians and specialists and encouraging in them an interest in bedside observation before the mind is stored with material of less practical value.

Increased care in history taking and greater emphasis upon physical findings will no doubt maintain the present well earned reputation by those in a measure remote from hospital and laboratory centers.

Many of the simpler chemical and microscopical examinations can be successfully carried out

*Address at annual meeting of the Illinois State Medical Society, Quincy, May 20, 1925.

in any physician's office, thereby meeting the objection that the sending of all specimens to some diagnostic center for an opinion is likely to develop a lack of confidence of your patient as to your skill and thus increasing the problem of the country physician. Permit me to say at this time that the praises heaped upon the family physician by many of our writers is well deserved because emergencies arise which must be promptly met and naturally developed a spirit of self reliance—therefore, "Back to the bedside."

The development of interest, taken by the lay press and by periodicals, in disease and public health matters, has doubtless been a factor in breaking the shell of reticence which has encased the medical profession for so many centuries, until it is no longer considered unethical for a physician to address a mixed audience on a subject concerning life and health. Commensurate with a growing public interest in these matters, physicians are beginning to realize that upon them rests a part of the responsibility of a systematic education of the people. To make this effective, the cooperation of all agencies, with the same objects in view, will be necessary and a spirit of toleration for differences of opinion as to methods of procedure must be cultivated in order to obtain substantial results. The campaign now being carried on in Illinois by the official organ of the State Medical Society and the Council, while yet in its incipiency, will lay the foundation for a great work if only the whole profession will supply the moral and material aid necessary for success. Many societies, known under different names, such as the Federation of Women's clubs, nurses' associations, childs' welfare stations, tuberculosis dispensaries, asociated charities, etc., have sprung up with overlapping responsibilities and differences of opinion as to policies which threatened to complicate, if not jeopardize, the objects of their creation. Many meetings have been held, attended by representatives of these various organizations and participated in by physicians and Miss Carroll Keller, the official lay representative of the Illinois State Medical Society, the object of which was to cultivate a spirit of harmony and mutual understanding, both in health problem and legislative matters.

In regard to the threatened scarcity of physicians in sparsely settled districts upon which much is being written, I have not seen as yet a satisfactory solution of the subject, although a basis is being laid for serious consideration. When the arguments are sifted down, a marked difference of opinion will be manifest. My personal views have been formed by several years experience in a village practice a longer period in a city of larger proportions, and seven years of close contact with students fresh from college, seeking licensure and a location for practice. I assume the responsibility of any views I may offer on this question and at the same time, express my appreciation of the energy and valuable time in an attempt to solve these emergencies by others. Primarily, the method of instruction in our medical colleges can and no doubt will be changed by those who are in a measure responsible for the present condition of affairs. Second, the supply of physicians in the more densely populated centers of industry and in the larger cities does not seem to present any serious problem at this time and the situation can be met in an ethical manner. In districts, however, where the population is too small to support a physician, the question will be harder to solve. The payment of a salary, however, by subscription or taxation would develop a condition closely approaching state medicine, which I am confident we are not ready to accept.

That an earnest and successful effort will be made to change the present methods of medical education, by those entrusted with that responsibility seems more than probable, in view of the present general discussion of that subject. Whether that will meet the demand of sparsely settled districts or neighborhoods where the fees would be inadequate to support a physician, will depend in a considerable measure upon the proposition as to whether the recent graduate under those conditions would pursue any different course than at the present time. That physicians can now be spared from many of the more densely populated centers is conceded, and yet the solution has not been reached. With all due consideration for the opinions of others from whom I may differ, the question of medical education bears a resemblance to the great problems presented not only in other educational matters, but in all of the great avenues of industry which are taxing the ingenuity of students of economics throughout the world. I have touched upon this subject as one of our problems, in order to emphasize the fact that the relationship between the

technician, specialist and family physician is so intertwined as to present one complex question for solution.

I am not of those who entertain a pessimistic view of the future of scientific medicine. A profession that has made discoveries which are accepted by every civilized nation on earth will be able to sustain itself against the attacks of any heterogeneous mass of persons or organizations whose purposes seem to be the overthrow of generally accepted fundamental principles for which they offer nothing tangible in return. The medical profession stands ready at all times to accept scientific truths regardless of their origin, and will investigate, without prejudice, any method seriously offered to alleviate bodily ailments, but among the innumerable and grotesque methods resorted to in the last thousand years, no dogma has ever survived, and there seems to be no reason to assume that new ones springing into existence will escape the oblivion that has overtaken the rest. I am not considering methods of treatment at this time, and it is my desire simply to emphasize the attitude of our committees on medical legislation whose energies have been directed to the education of the public in the well established facts of the etiology of pathological processes, and that health laws and laws governing licensure to practice could have but one object, and that is the prevention of the spread of disease and the relief of human suffering.

PRACTICAL APPLICATION OF RADIATION THERAPY IN CONJUNCTION WITH SURGERY*

B. C. Cushway, M.D.
CHICAGO

Radiation therapy is such a broad subject at the present date that it is necessary to limit its consideration to a few of the more common and typical lesions in the various parts of the body. Radium and x-ray are used in many of the lesions known to medical science. It was first used empirically, but later greater and more exact technique was employed in the detailed and systematic study of the biological reaction of normal and pathological human tissue to this form of energy, so that the treatment of certain lesions is now based upon rational and scientific grounds.

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wis., Oct. 27-31, 1924.

Let us briefly review some of the conclusions that have been drawn from this vast amount of experimental work. The action of roentgen rays and the rays given off by radium is destructive to animal tissue. Of late, very little is said in the literature of the so-called stimulating action. It is true that in certain cases increased growth can be demonstrated, but this hyperplastic growth soon results in increased resistance, in necrosis, or in early death. This temporary hyperplasia or hypertrophy is considered by Pordes as a retrogressive reaction due to protoplasmic injury rather than a progressive reaction. Practically all of the biological reactions of injury may be divided into three groups: First, that injury from which the cells may completely recover. Second, that injury in which the cells are permanently robbed of specialized functions including reproduction, but continue to live. Third, that injury that produces pycnosis, coagulations, necrosis, and death.

It is a conceded fact, then, that we have at our disposal an agent by means of which we may either temporarily retard function, permanently destroy function without causing necrosis, or completely destroy living tissue. The surgeon with the knife and cautery can only remove or destroy tissue. The most efficient treatment of many lesions has proven to be a combination of destruction and the retarding or destruction of the function of certain other cells or groups of cells. With this view in mind, let us take up the chief classes of disease in which x-ray or radium combined with surgery gives the greater percentage of cures, or shortens the convalescence of the patient. For convenience in description, let us divide the diseases that can be best treated with a combination of surgery and irradiation into the following classes: glandular dyscrasias, benign tumors, and malignancy.

Probably most important of the glandular dyscrasias treated by x-ray and surgery are exophthalmic goiter and toxic adenoma of the thyroid. These are distinctly different pathological diseases with very similar clinical symptoms, yet with definitely different results obtained with surery and x-ray. Toxic adenoma usually makes its appearance early in life, gradually increasing in size, but not producing serious symptoms until the fourth decade of life or the menopause, while exophthalmic goiter usually makes its appearance about the age of 20 or 30, grows rapidly worse,

with periods of quiescence and acute exacerbations.

A great deal has been said pro and con about the surgical and x-ray treatment of these two conditions. I will give you the opinion of a few who have made the treatment of toxic goiter a study and have had wide experience. Dr. Edward P. Richardson, in an article based on cases studied by a committee of surgeons, internists, and roentgenologists at the Massachusetts General Hospital, finds the average results in all cases treated by sub-total thyroidectomy to be slightly better than the results in a selected group of cases treated by x-ray. The latter form of treatment, however, has certain advantages; the absence of mortality, operative scar, discomfort, distress, and hospitalization. He further states that in a certain percentage of cases it will bring about a degree of improvement with a lower operative mortality or making unnecessary some of the preliminary operative steps. In selected cases of exopthalmic goiter, roentgen ray treatment under careful control is justifiable for about four months. After that time, if condition does not promise a cure, operation should be resorted to.

Lars Edling reviews a series of cases treated at Lund, from 1915 to 1919. He finds the following results: 80% show positive improvement. Of these, 30% are apparently cured, 43% show considerable improvement, with 7% recurrences and subsequent improvement, and only 20% were failures.

Richard Sielmann reviews a series of 328 cases treated by radiation, as follows: 12% had been operated upon before irradiation. 5.5% remained free from symptoms from 7 to 10 years; 32% from 3 to 6 years, and 14% from 1 to 2 years, which makes a total of 50.9% free of symptoms. Of these, 44.5% were improved; 5% refractory. After irradiation, 13 (4%) were operated upon, 3 without results. This paper clearly points out why the roentgenologist and surgeon claim their respective procedures the proper method of treatment. Each has treated, with success, cases in which the other has failed.

In my opinion, this speaks for closer co-operation, in that the combination of the two methods will produce more than 70 to 80% of cures, which is a higher percentage of cures obtained when surgery or x-ray alone are employed. Not only this, but in our experience, we have had a number of patients, who on account of extreme toxicity, were such poor risks that operation was considered impossible. After a series of x-ray treatment, the toxicity was so much reduced that operation was feasible. These patients have since been operated on and remained free from symptoms up to the present time. All my experience speaks at least for a trial, of this form of therapy. It does no harm, and makes the case a better surgical risk.

The next sub-group of diseases which come under this head and are considered both surgical and a type for radiation are the constitutional or idiopathic amenorrheas, menorrhagias and metrorrhagias. Those cases in which no pathological cause can be found other than a hypo or hyperfunction of the ovaries or endocrine system. Recent experiments have shown that the corpus luteum contains some substance acting upon the endometrium, thereby controlling the menstrual cycle. While the corpus luteum is the controlling factor, these idiopathic conditions do occur at the time when the endocrine activity is likely to be abnormal, and this often plays a most important role. Fortunately, x-rays control both conditions, through their action upon the ovaries. Flatau in the *Archives of Gynocology*, Berlin, December 30, 1922, reports 50 cases of idiopathic amenorrhea treated with x-ray, after all other forms of treatment had failed. Thirty-eight of these patients are normal at the present time. Of the 12 treated since 1921, 10 are normal, 2 have been delivered of normal children, and in the third case, the pregnancy has not yet reached term.

R. Balli and A. Fornero in *Actinotherapy*, Naples, June 30, 1922, report four cases of idiopathic amenorrhea treated with x-ray after all other forms of therapy, including long periods of organotherapy, all of which are normal at the present time.

In my own experience, I have treated two such cases with complete success in both cases. One returned for more treatment after a period of six months, now normal.

Although amenorrhea is classed as a medical disease, I have included it in this paper because of its close association to idiopathic menorrhagia and metrorrhagia which are classed

as surgical cases. These conditions are apparently of the same origin as amenorrhea and respond to the same form of treatment with a variation in technique which does not belong in this paper. However, this is still an academic question.

In the first year following the establishment of the menstrual function, menorrhagia is occasionally encountered. Leaving out all cases due to definite lesions such as fibroids, sarcomas, mucous polyps, metritis, utero adnexal lesions and systemic tuberculosis, there are many cases without any apparent cause and which have generally been attributed to disorders of the internal secretions. This condition often occurs in the child-bearing period and is most difficult to cure without hysterectomy, a form of treatment which is not desired. That which is indorsed by F. Dounay, Sir G. Blacker, E. L. Stewart, and H. M. Tovell, is a combination of medical, surgical, x-ray, and radium therapy. Since this is apparently a disorder of the endocrine system, organotherapy should be tried in an effort to restore the normal balance and relationship between the endocrine organs. A curettement may be performed as a diagnostic aid to eliminate malignancy in every case before beginning x-ray or radium treatments. This can be carried out in such a manner as to restore a fairly normal menstrual cycle, but may produce sterilization in a small percentage of the cases. However, inasmuch as hysterectomy is the only alternative, this is hardly to be considered as a contra-indication.

Gustave C. J. Scholten and Friedrich Voltz report 20 cases in which the spleen alone was radiated in purely functional menorrhagia with restoration of the normal function in 19 cases, a percentage of 95. They prefer this form of treatment in that they avoid the dangers of even temporary sterilization which in some cases is seriously objected to by the patient. Other statistics follow this percentage of cures very closely, ranging from 92 to 98% success.

Closely related to the above, yet belonging to the class of benign tumors, is the menorrhagia produced by the presence of fibroid or mucous polypus. W. C. Danforth analyzed 100 cases of uterine bleeding of non-malignant origin, of which 98% were successfully treated by irradiation. In selecting patients for irradiation, the maternal possibilities of the patient must always be kept in the foreground. This treatment is particularly applicable to women at or about the time of the climacterium. Under 40, its use is not to be lightly regarded, for the complete inhibition of ovarian function which the usual dose for myopathic bleeding brings with it, may have more serious consequences than the condition which we are attempting to eliminate. In the presence of pelvic infection, past or present, radium should not be used. A number of deaths have been reported as the result of pelvic peritonitis as a sequelae of lighting up of an old pelvic infection by the application of radium. The larger fibroids should be removed surgically, although even here, x-ray or radium may be of inestimable value where the condition has resulted in a secondary anemia to such a degree that the patient is a poor surgical risk The hemorrhage may be so reduced that the patient is in much better condition for operative proceedings. This can be done without altering the operative fields or delaying union in any way. Irradiation is also of inestimable value in those cases in which surgical procedures are contraindicated due to a constitutional disease or where refused by the patient. Under the age of 40, great benefit may be obtained by this form of treatment, without producing amenorrhea if carefully and properly given. In my experience, I have had about 95% successful results without producing a permanent amenorrhea in any case, although an amenorrhea of from 3 to 9 months has resulted in a number of cases. Normal menstrual function was established in all cases after this period.

Included in the classification of benign tumors, treated best by a combination of surgery and irradiation, are nasal polypus. Horace R. Lyons of the Mayo Clinic, in reviewing 55 cases says, "All possible methods of medical and surgical treatment have been attempted and as yet, a definite procedure that will affect a permanent cure has not been found. The use of radium was introduced about three years ago in an effort to aid operative measures in affecting a cure or at least delaying return." He reached the following conclusions:

1. The application should be started on the second or third day after operation.

2. Radium should be applied not oftener than once a week.

3. 200 mg. hours of radiation at weekly intervals has not produced a burn, and is, therefore, safe radiation.

4. Radium in a majority of cases, undoubtedly lengthens the interval of recurrence.

5. Definite operative cures occur more often with radium than without it.

6. Radium does not affect an associated suppurative sinus disease.

With respect to the treatment of malignancies, I hesitate at the present time to advise the use of radiation to the exclusion of all other forms of therapy as some have done. The application of this form of energy to malignant tissue has not proved to be the success that has been claimed for it, except, perhaps, in one type, the basal celled epithelioma where large series treated by radiation alone gives 91 to 99% cures. In other types, the percentage is about the same or even slightly lower than when surgery is used alone. I am not considering here, of course, the vast number of inoperable malignancies that are sent to the roentgenologist, who obtain a marked relief of symptoms and in a large percentage, a prolongation of life, nor those who are so much improved that operation is possible.

A great deal of interesting and valuable experimentation has been carried out in the last two years in the effects produced by radiation upon normal and malignant tissue. Wood and his co-workers find that in mouse tumors radiated 15 minutes, they obtain 100% of takes; with 40 minutes exposure, the percentage of takes was reduced to 50. With 65 minutes of exposure or over, the takes were reduced to from 2 to 4%. Applying this to the treatment of malignancy in man, we would expect that the metastasis following surgical intervention would be greatly reduced by irradiation providing distant metastasis has not already occurred. We would also expect pre-operative irradiation to reduce the likelihood of metastasis, especially in the operative field, or contiguous tissue. It is also indicated in cases where they cannot remove a wide margin of normal tissue adjacent to the new growth or where excessive manipulation cannot be avoided. This is a field in which a combination of surgical and radiation therapy obtains the greatest number of good results. In actual practice, this is borne out by clinical observations, although statistics at the present time are not complete enough in all forms of malignancy. Dr. J. De Smit sums up the results in 117 cases of operative carcinoma of the breast; 60 of which were treated by x-ray following operation with the following results: glandular relapse occurred in 27% of treated and 29% of untreated cases. Relapse occurred without glandular involvement in 10% of treated and 20% of the untreated cases. Although this series is not very large, it is certainly a very strong argument for the combination of surgery and roentgenotherapy in the treatment of malignancy.

Arthur Desjardins of the Mayo Clinic advises pre-operative radiation therapy in all cases of carcinoma of the breast, "Because the radiation can be employed much more effectively before operation since there would not be a recent wound to prevent the arm from being well abducted. The entire axilla can be more thoroughly treated and there is less tendency for malignant cell dissemination at the time of operation. This principle may be applied to the general surgical treatment of all malignant conditions, except in cases in which surgery is intended as a preliminary step before radiation.

In connection with this last exception, carcinoma of the rectum and bladder are the more common in which preliminary surgical steps are taken to facilitate or make possible the application of radiation. In carcinoma of the rectum, the surgical statistics show a "Clinical cure" at the three-year period of from 15 to 20% following the radical operation with an operative mortality of about 16%. This includes statistics covering several thousand cases. Ernest A. May of the Metcalf Foundation Institute for Deep Ray therapy, reviewing 51 cases in which the combined treatment was used, says, "We treated every case, not one being refused as hopeless. 29 or 57% of them were operable; the other 22 or 45% were inoperable. Of these 22 inoperable cases, 5 cases, or 23% have become operable by means of radiation. Of the 51 cases, 2 died as the result of operation, and 32 died of cancer within an average of 2½ years. 15 cases or 29.5% show a permanent cure after 2½ years. Two others show improvement.

Carcinoma of the bladder is another condition

which requires a combined procedure. Suprapubic cystotomy with the implantation of radium directly into the tumor has greatly reduced the mortality of this disease. B. S. Barringer, New York, reports 19 still living out of 35 cases, of these 20 were classed as inoperable.

One of the most common locations of carcinoma and one which has received a great deal of attention by the physician and neglect by the patient is the uterus, generally the cervix. The combined statistics for the radical operation indicate 20% survivals in from 3 to 5 years. Statistics of the results obtained by x-ray and radium alone give the following results: L. Seitz, 58 patients, with 20.9% survivals, Döderlein, 205 cases—19.5% survivals, Bumm, 78 cases—14% survivals, Baisch, 42 cases—16% survivals, Klein, 73 cases—12% survivals, and Haymann, 26 cases—26.9% survivals. The average here is seen to very closely approximate that obtained by the radical Wertheim operation. The statistics do not take into consideration the number of inoperable cases refused by the surgeon who have been treated by radiation and have been so improved as to become operable or the large number of inoperable cases who have been made more comfortable, the pain and discharge eliminated, the patient becoming practically free of symptoms during the rest of a prolonged life, though they finally succumb to the disease.

Statistics of the combined treatment by surgery and radiation therapy are not extensive enough at the present time to give definite percentage of results. The most of the cases treated in this way are too recent to obtain definite figures on the effectiveness of this method, although the results of the method in other types of carcinoma would lead us to believe that the per cent of survivals would be much higher. Since it has been found that many times the primary lesion is less susceptible to radiation than the metastases, this method has gained in favor and is being used in many of the larger clinics of this country. Harry H. Bowing, of the Mayo Clinic, draws the following conclusion from his experience in the section on Radium and Roentgen Ray Therapy:

1. If the lesion is adequately treated with radium, and a sufficient interval between the first application and total abdominal hysterectomy follows, active carcinoma cells will not be found on microscopic study of the specimen removed.

2. As a preoperative procedure, radium treatment is by all means the most effective. It destroys the neoplasm and calls forth the natural defense mechanism of the body. If cases of primary carcinoma of the cervix are subjected to such treatment, special difficulty will not be added to the operation.

3. A total abdominal hysterectomy following the radium treatment is a justifiable procedure, since it deals most effectively with the pathological condition and also deals with other pelvic lesions that may be found at the time of operation.

While carcinoma of the esophagus is hardly classed as a surgical condition, yet, inasmuch as gastrostomy is very often necessary, I am including a brief summary of 44 cases treated by R. Walter Mills and John B. Kimbrough, of St. Louis. In no case have they a cure or one that will probably result in cure. In the series, the palliative result was strikingly good in 12; fairly good in 12; fair in 14, in 3 slight, and in 3 others, negative, the longest duration of life after treatment was 3½ years. Another lived 2 years and 4 months, another one year and seven months. The remainder died within one year.

In my own experience, I have treated 11 cases in the past 2½ years. These have been treated by means of radium within the esophagus and x-ray 200 K. V. over the thorax. The results are as follows: Three are living, one after 2½ years, one after one year, and one after six months. All the dead died within one year, but the palliative effect was striking in practically every case. I believe the good results here were due to the combination of deep x-ray therapy with the direct radiation with radium. The combination of the two methods has a great advantage over either alone. Radium is best used to treat the local lesion, while x-rays are most advantageous in treating the lymphatic and outlying tissues, which are too far away from the radium to receive sufficient radiation.

The results given here and in other portions of this paper certainly argue for a closer cooperation between the surgeon and radiologist.

29 E. Madison Street.

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EPIDERMOPHYTOSIS*

CHARLES J. WHITE, M. D.

Professor of Dermatology in Harvard University, Chief of the Dermatological Department, Massachusetts General Hospital,

and

ARTHUR M. GREENWOOD, M. D.

Assistant in Dermatology at the Massachusetts General Hospital.

BOSTON, MASS.

Gentlemen: My first duty as well as pleasure is to thank you and the officers of this great association for the privilege of addressing you this afternoon. I assure you I appreciate deeply the honor conferred upon me.

I have chosen as the theme of my discourse the form of ringworm known sometimes as epidermophytosis. My object in this choice is principally to try to make known to the medical profession as a whole what dermatologists have learned during the last five years about an infectious disease which has grown in this interval from relative nothingness into one of our most prevalent affections.

Before entering upon the description of this infection let us pause a moment to review what our predecessors have known concerning it.

In 1869, Hebra, to whom we all owe so much, described eczema marginatum. Soon after Hebra's first clinical description, Körbner, Pick and Kaposi demonstrated the "mycosic" nature of the disease. In 1870, Tilbury Fox proved that certain so-called eczemas of the palms were in truth of ringworm origin, and in 1888 Pellizari described the same disease on the lateral aspects of the fingers. In 1891, Arnozan and Dubreuilh and also Mansouroff demonstrated examples of these conditions before their local medical societies. In 1892, Djelaleddin Mouktar wrote the most detailed and comprehensive paper on the subject which had thus far appeared, but limited himself to the disease on the palms and soles and fingers and toes. It was he who first noted that dyshidrosis and ringworm were indistinguishable clinically.

In 1905, Castellani proved that "dhobie itch" was in reality due to an unusual variety of ringworm fungus and gave the name of Trichophyton cruris to an organism which he isolated from some of his cases; at this time he recorded cases of this disease on the scrotum, in the axilla, and on the chest and abdomen, and even went so far as to say that the disease could exist anywhere except on the scalp. Two years later, that is, in 1907, Sabouraud showed that this fungus was not a tricophyton but belonged to another genus and he gave it the name Epidermophyton inguinale.

In 1902, Whitfield published his first observations. Later, in 1910, he discussed maceration between the toes, and three years later was sufficiently informed to classify the disease into three types: 1, the acute vesicobullous; 2, the chronic intertriginous of the toes, and 3, the hyperkeratotic of the palms and soles. In 1910 he gave us "Whitfield's ointment."

In 1910, Bang added further confirmation from Copenhagen of the rapidly increasing appreciation of epidermophyton infections. In 1913, Nicolau revived the study of the so-called eczema marginatum of Hebra, decidedly increasing our knowledge of the disease. In 1914, Kaufmann-Wolff published a paper based on twenty-five cases observed in Vienna, Paris and Berlin, and described for the first time the lardaceous type of infection between the toes. In the same year, 1914, we find the communication on this subject from an American source, Montgomery and Culver; followed, in 1915, by one from Hartzell. In 1916, Ormsby and Mitchell published their striking paper corroborating the earlier claims of Mouktar that dyshidrosis is purely and simply an epidermophyton infection. In the same year another American, Dr. C. Guy Lane, published a paper. Perhaps the last lengthy communication on this subject, a paper based on the observations of 165 private cases, was read by one of us (C. J. W.) in 1919.

Considerable work has been done in the last three years on the generalized eruptions accompanying deep fungus infections. The chief is that of Bloch (Les trichophytides, Ann. de dermat. et syph. 2:1 (Jan., 1921).

E. Bruusgaard (Brit. J. Dermatol. 34:130

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(May, 1922) reports a case of blood borne infection with a trichophyton of the gypseum group, and Williams also reports cases of trichophytides accompanying kerion. (Arch. Dermat. & Syph. 4:353 (Sept., 1921).

No cases are found in the literature of a similar eruption with epidermophyton infections and since all the trichophytic eruptions accompany deep infections it may be that they will not be found in such a comparatively superficial condition as that of epidermophytosis. On the other hand, the frequent failures to find the fungus in the generalized epidermophytoses would be well explained by the postulate of an epidermophytide. It is also certain that the epidermophyton is not responsible for all the infections now classed under the head of epidermophytosis. Cultural experiments by Mitchell (Further Studies on Ringworm on the Hands and Feet, Arch. Dermat. & Syph. 5:174 (Feb., 1922) and Greenwood (Report on Cultures of Parasitic Fungi, Arch. Dermat. & Syph. 8:81 (July, 1923) show a comparatively large proportion of the cases of epidermophytosis to be due to the trichophytons.

The most recent report on immunity in ringworm infections (Greenbaum: Immunity in Ringworm Infections, Arch. Dermat. & Syph. 10:279 (Sept., 1924) concludes that superficial ringworm infections give only a local tissue immunity; that deep infections (in guinea-pigs) result in a partial general immunity; and that few or no ringworm antibodies develop in the course of superficial ringworm.

R. de Silva (J. Trop. Med. 24:303 (Dec. 21, 1923) produced typical Dhobie itch on a man by inoculation with a culture of epidermophyton rubrum (Castellani). According to Ota (Contribution to Study of Trichophyton Purpureum Bang, Trichophyton Interdigitale Priestly and Trichophyton "B" Hodges, also on Trichophyton "A" and Trichophyton "B" of the author, Arch. Dermat. & Syph. 5:693 (June, 1922) this organism belongs among the group of trichophytons.

J. Butler (Northwest Med. 21:366 (Oct., 1922) reported a case of epidermophytosis on the bald scalp—a very unusual location.

N. Hallows (Lancet 2:291 (Oct., 1922) presented an excellent article on the control of tinea cruris.

Interesting original work has been done by J. G. Hopkins, M. D., and K. Iwamoto, M. D., on Fermentation Reactions of the Ringworm Fungi (Arch. Dermat. & Syph. 8:619 (Nov., 1923); ibid, 8:838 (Dec., 1923).

W. Dubreuilh (Ann. de dermat. et syph., page 65 (Feb., 1924) has described an intertrigo from which was constantly recovered a parasite of yeastlike growth not resembling the trichophytons.

Sabouraud criticizes (Ann. de dermat. et syph. 4:425 (July, 1923) Petges' Report on Epidermomycoses (Premier Congrès des Dermatologistes et Syphiligraphes de langue francaise, Masson et Cie, Paris, 1922). He states that there are only trichophytic and streptococcic intertrigos, and that great care shoould be taken to be certain that the common and known infecting agents are absent and that the supposed causal agents (chiefly yeasts) are not merely surface contaminations.

M. Zingali (Gior. ital d. mal. ven. 64:929 (Aug., 1923) distinguishes two types of epidermomycosis of the hands and feet: 1. Dyshidrotic or eczematous, vesicular and pustular; 2, intertriginous, usually seen between the fingers and toes.

Petges gives a comprehensive Report on Epidermomycoses (Premier Congrès des Dermatologistes et Syphilographes de langue francaise, Masson et Cie, Paris, 1922).

Dyshidrosis has had much discussion during the past few years. Darier (Lancet, Sept. 27, 1919) demonstrated that 80 per cent. of the cases giving the clinical picture of dyshidrosis were of mycotic origin, and this led him to deny the autonomy of dyshidrosis. He considered it most often mycotic—at times artificial. The parasite was most commonly the epidermophyton, but might be a trichophyton or one of the group of yeasts—saccharomyces cryptococcus (Greenbaum and Klauder).

Sabouraud and Brocq hold that a true dyshidrosis, not mycotic, exists (Sabouraud: Bull. Soc. franc. de dermat. et syph. No. 3, 1922).

A. Sicoli (True and Pseudo Dyshidrosis, Ann. de dermat. et syph. (Feb., 1924) after very thorough work in Sabouraud's laboratory concludes that the disease dyshidrosis is not a true entity but a syndrome which may be caused by 1, a mycotic infection; 2, by irritants; and that there is a third condition which is probably the dyshidrosis of Tilbury Fox. He distinguishes distinctive histological changes in these varieties.

E. Rajka (Arch. f. Dermat. u. Syph. 143:204,

1923) concludes that the syndrome called dyshidrosis comes from three causes: 1. Mycotic (trichophyton gypseum and epidermophyton); 2. pyogenic microbes; 3. other causes not parasitic.

Other articles on the general subject which have appeared are:

McGlasson, I. L., and Lehman, C. F.; Epidermophyton and Trichophyton Infections of the Skin, Texas State J. Med. 9:626 (March, 1924).

Hutchins: A Contribution to the Treatment of Phytosis of the Feet, Arch. Dermat. & Syph. 6:761 (Dec., 1922).

Crawford: Disseminated Epidermophytosis, Arch. Dermat. & Syph. 8:310 (Aug., 1923).

Miller, J. W.: Dermatoses of Present Day Interest, Ohio State M. J. 18:547 (Aug., 1922.)

Frick, W.: Epidermomycosis, J. Missouri M. A. 20:55 (Feb. 23, 1924).

Williams, C. M.: The Diagnosis of Some Eruptions on the Hands and Feet, Arch. Dermat. & Syph. 5:161 (Feb., 1922).

Greenbaum, S. S., and Klauder, J. V.: Yeast Infections of the Skin: Report of Cases and of Studies on the Cutaneous Yeasts, Arch. Dermat. & Syph. 5:332 (March, 1922).

Epidermophytosis is a multiform infection of the skin and nails due, evidently, to various types of the ringworm plant. Seemingly in the long run it spares no portion of the human body save the hair.

Etiology. The exact provenance of this mould is very hard to determine. In the majority of instances we obtain absolutely no clue as to the source of infection and feel inclined to fall back upon the idea that the spores are derived straight from the air. This is not a shiftless thought for we know that leather shoes left in a suitable place and atmosphere may develop a mouldy growth upon their surface.

Watching this disease intensely during the last six or seven years and questioning its victims closely we feel decidedly inclined to incriminate the animal products leather and wool as the chief sources of infection. Among the separate items which have created suspicion I would mention bathing suits, jockey straps, handles of golf clubs, knitting wool, leather and woolen gloves, woolen socks, woolen tights, leather shoes worn without stockings, trusses, base balls and athletic underclothes which have been hung up, hot and wet after use, in a dark, confined space and subsequently worn once or many times without being cleansed. In addition to these two groups a wet sponge used in bowling seemed to be the infectious origin in one patient.

Two probable etiological conclusions stand out pre-eminently: first, man does not give this disease to his neighbor directly; and second, the bulk of mankind, in New England at least, seems relatively immune to its attack, for in my private practice in only 4.5 per cent. of these infections was a second example found in the patient's family or immediate entourage. The only exception to this second conclusion occurred in a boarding school of 175 boys, where six individuals who used the same shower-bath became infected about the feet. As a second known instance there is on record the infection of twenty-three members of a golf club whose feet became involved after using the club's shower-bath.

Mycology. The laboratory investigation of epidermomycoses consists of two parts: (a) the microscopic examination of the fresh material, scales and bits of the infected nails, and (b) cultivation and identification of the fungi.

It is important to select the most favorable material for microscopic examination. In the foot and hand cases the best material will be found at the advancing borders of the lesions. At the junction of the infected area with the normal skin there will be found a delicate scaling border with the free ends of the desquamating epidermis toward the centre of the lesion. This edge should be raised with forceps and peeled off toward the normal skin and examined. The macerted material so often seen is useless in most cases.

In the vesicular type one should cut off the roofs of the vesicles and use them for examination. The roofs of dried vesicles are also frequently positive. The ordinary crusts in these cases are of no value.

In nail cases one should pare off thin slices from the nail after its surface has been scraped clean with the edge of a glass slide. If it is necessary to preserve the material for future examination it is best kept between two slides whose surfaces have been flamed. Such material may be kept almost indefinitely, both for examination and for cultural work.

For the microscopic examination of the fresh

material use is made of the clearing effect of KOH on the tissue cells, while the fungi are resistant, the result being that the fungi show as refractile bodies against a fairly clear background.

The usual directions are to mount the material in 40 per cent. KOH on a slide, cover with a cover glass and gently heat, but we have found that much better results can be obtained by boiling the material in a test tube or watch glass in an excess of KOH. The boiling should be carried just to the point where the scales do not disintegrate. The liquid with the scales is then poured into a watch glass and the scales floated onto a cover glass as one would mount a paraffine section. In case the scales are disintegrated the liquid may be centrifuged and the sediment pipetted off and mounted. The fungi are so resistant that long threads or hyphae may be found in a case which contains a considerable amount of the fungus.

In searching for the fungus the high dry lens of the microscope should be used with most of the light cut off. Frequently the hyphae can be seen with low power and if one is sufficiently expert in their recognition this is a great saving of time. The parasite should appear as a septate, refractile thread, sometimes branching and sometimes broken up into a chain of fragments. One should never make a positive diagnosis unless these fragments are seen in definite chains. These fragments are usually spoken of as spores, but they are not true spores but are bits of the vegetative part of the parasite. Much patience is necessary in this part of the work and several hours of careful search are not too many before pronouncing a case positive or negative.

The fungi show two stages of growth—the simple vegetative, and the form in which certain portions of the hyphae are differentiated for the purpose of reproduction. The primary reproductive body of the fungi is called a spore, and in the fungi it performs a function analogous to that of seeds in the higher plants. The vegetative forms are practically all alike, certainly not sufficiently different to allow identification of the different genera and species in the scales, so that their manner of producing spores or fruiting bodies is the chief means at present known for such identification. In the host these fungi show only their vegetative form; on cultures they may show distinguishing features such as special spore production or other differentiating manners of growth, and it is for this reason that they must be grown in culture.

There is one other peculiarity which must be considered. On mediums containing sugars many of these fungi, after varying lengths of time, take on the so-called pleomorphic form, which is a return to the vegetative manner of growth. This consists of an overgrowth of hyphae which do not produce spores and which, when transplanted, always give the same pleomorphic growth, never the characteristics of the primary culture. On mediums which do not contain sugar this change does not occur, so that we grow all our cultures on two mediums, one containing sugar and one containing only agar and peptone to preserve the culture. The standard mediums are those of Sabouraud and are made up as follows:

(a) Glucose 4%
Peptone 1%
Agar 1.5%

(b) Maltose 4%
Peptone 1%
Agar 1.5%

and (c) the conservation medium,
Peptone 3%
Agar 1.5%

A crude French glucose and maltose can be obtained or American pure dextrose (DifCo) may be used. Petptone Chassaing, a French product, is the best peptone to use. Recently a new medium has been recommended by William Goldschmidt (Brit. J. Dermat. & Syph. 36:204 (May, 1924). This consists of:

Pure glucose	4.
Agar	2.
Fairchild's pure bacteriological peptone	1.
Lemco (ordinary)	0.5
Sodium chloride	0.5
Tap water	to 100.

Standardized to pH 6.0

This medium aims to do away with the uncertainties of composition of the ingredients of the French medium and the author reports it to be very successful in cultures of Microsporon Audouini which are grown with difficulty on the usual mediums. We have not yet given this a trial.

In sterilizing the medium care should be taken not to overheat as this changes the sugars. For the first plants of suspected material slants in tubes are used. For further study of the growths obtained plants are made on Erlenmeyer flasks which give more material and space for the fungi to show their manner of growth.

In making the first plants the dried scales are cut up into small pieces and placed on the agar, about four pieces to a tube. At least twenty plants should be made in each case, but often

many more are necessary before getting a growth. The great difficulty is from contaminations from bacteria and saprophytic moulds. Various methods are used to inhibit these, such as washing the scales in alcohol and adding gentian violet (1:500,000) to the medium.

The cultures are grown at room temperature and after a growth is obtained it is transferred to the three different mediums for study. It is also grown in hanging drop preparations of glucose bouillon and direct mounts made in glycerine. The authoritative work on this subject is by Sabouraud (Les Teignes, Paris, 1910) but considerable work is being done and our knowledge is changing rapidly.

STATISTICS

(Based since 1910 upon the experience of one of us (C. J. W.) in private practice)

SEX

Males	521
Females	316

AGE OF INCIDENCE

18 months	1 case
1st decade	9 cases
2d decade	96 cases
3d decade	216 cases
4th decade	187 cases
5th decade	130 cases
6th decade	108 cases
7th decade	34 cases
8th decade	5 cases
9th decade	1 case

OCCUPATIONS

Housework or none	172 individuals
Students	137 individuals
Clerical work	135 individuals
Physicians or nurses	62 individuals
Salesmen or women	32 individuals
Teachers	24 individuals
Handlers of leather	21 individuals
Lawyers	17 individuals
Household servants	16 individuals
Handlers of wool	15 individuals
Clergymen	13 individuals
Bank tellers	3 individuals
39 other occupations	1 or more

DURATION OF DISEASE

2 days	5 cases	1 year	75 cases	12 years	7 cases
1 week	12 cases	2 years	56 cases	13 years	1 case
2 weeks	41 cases	3 years	42 cases	14 years	1 case
3 weeks	15 cases	4 years	26 cases	15 years	6 cases
1 month	40 cases	5 years	17 cases	16 years	2 cases
2 months	41 cases	6 years	12 cases	17 years	1 case
3 months	33 cases	7 years	17 cases	18 years	1 case
4 months	22 cases	8 years	12 cases	20 years	1 case
5 months	25 cases	9 years	8 cases	25 years	1 case
6 months	26 cases	10 years	11 cases	30 years	1 case
7 months	5 cases	11 years	7 cases		
8 months	6 cases				
9 months	6 cases				
10 months	3 cases				

POSITION OF LESIONS

Palms	182	Both groins	222
Back of hands	57	Perineum	48
Fingers	225	Intergluteal folds	47
Arms	9	Penis	17
Bend of elbows	25	Scrotum	48
Flexor of forearms	20	Labia	16
Nails	31	Pubes	22
Scalp	1	Legs	11
Neck	10	Popliteal spaces	9
Axillae	96	Ankles	14
Under breasts	9	Soles	118
Umbilicus	7	Back of feet	42
Trunk	6	Instep	46
Left groin	89	Ball of feet	33
Right groin	15	Toes	272

TYPES OF LESIONS

Vesicular	307	Papular	44
Scaling	282	Callous	49
Macular	270	Keratotic	33
Macerated	128	Lichenified	21
Fissured	77	Purpuric	1
Epidermophytide	31		

APPARENT INCREASE IN PREVALENCE OF THE DISEASE

1910	3 cases	1918	31 cases
1911	5 cases	1919	79 cases
1912	11 cases	1920	87 cases
1913	14 cases	1921	131 cases
1914	20 cases	1922	118 cases
1915	17 cases	1923	148 cases
1916	21 cases	1924 (up to Oct. 10)	126 cases
1917	25 cases		

MORPHOLOGY

As noted in one of the preceding statistical groups we have ecountered the eleven following clinical types of the disease, namely, vesicular, scaling, macular, macerated, fissured, papular, callous, keratotic, lichenified, purpuric and epidermophytide. We may find pure types representing any of these several forms but more often a single patient will present one or more varieties of this multiform disease.

The Vesicular Form (24.8%). This type is the commonest and is found practically limited to the hands and feet. The vesicles may be minute and superficial or larger and deeper. The vesicles may arise in a few hours and in unaccountable numbers or they may develop from day to day and always remain scattered and sparse. The vesicles are always round and dome-shaped. When superficial one cannot differentiate them from the vesicles of dermatitis venenata and one must rely in the differential diagnosis upon the history of the case and upon the evolution of the lesions. When deep the vesicles often present a feature which one might well regard as pathognomonic. This characteristic consists of a peculiar steel-blue centre surrounded by a lighter-tinted periphery. Formerly we observed this feature in the vesicles of dyshidrosis but today most of us consider dyshidrosis as the vesicular form of epidermophytosis. The superficial vesicles are somewhat easily broken; the deeper variety is very tough and one must plunge the knife firmly to open them.

Both varieties of lesions may disappear spontaneously. If friction or maceration break the envelope of the superficial type the surface of the affected skin becomes wet and easily confused with the appearances of eczema madidans. During the possible spontaneous absorption of the contents of the deeper variety a noteworthy ring of desquamation may form about the periphery of the lesion. This phenomenon should always awake our suspicions that we are probably confronted with the disease epidermophytosis.

Vesicles of epithermophytosis usually form on the sides of the fingers and the toes, less often on

the lower surfaces and least often on the dorsal aspects. They are very often seen on the palms, when they are always deep, while on the plantar surface they usually affect the arch of the foot, less frequently the actual sole.

Itching may be slight and negligible, more often severe, and at times unbearable.

There are great variations in the course of this type of the disease; usually periodicity marks its progress. All forms of epidermophytosis are apt to be more severe in warm weather—plants as a rule flourish with heat and moisture, but the vesicular type above all waxes in the summer months. The vesicular type is perhaps one of the least obstinate and most easily curable of all forms of the infection.

The Scaling Form (22.8%). Perhaps we can regard the scaling variety of epidermophytosis as a stepping stone to the hyperkeratotic and to the callous varieties, but it has certain points which justify in my opinion a separate consideration.

The real seat of this type of the disease lies on or about the toes. This statement, of course, does not preclude the fact that a certain degree of scaling may at times accompany every form and every site of the infection. To observe the scaling process at its best, however, we must separate the toes one from another, and especially the fourth and fifth, and note the condition therein. In addition, we must turn the feet over and observe carefully the junction of the toe with the plantar surface.

This desquamative process seems to follow no precedent change—so far as one can see it is a primary one. The scales may be small or larger, they are usually adherent at one part, they vary from the dry, whitish type to the moister, greasy, darker-hued variety. When torn away they do not leave a bleeding surface. The scales where the toes join the sole are always small and usually whitish and relatively adherent. At times the scales are on the sides of the toes, at others in the web between, and again at both sites.

The degree of severity of this form of the disease varies greatly. At times it takes a careful observer to note that the condition exists, and this is especially true at the plantar seat. Very often the condition exists merely between the fourth and fifth toes. Again the merest tyro can see that every toe and every web is covered with many large scales. Pruritus is not particularly a salient feature.

The course of this scaling variety is always chronic but it cannot be regarded as one of the most obstinate forms of the malady.

The Macular Form (21.8%). This is the original type of the disease, discovered by Hebra as far back as 1869, labelled by him eczema marginatum, and within a few months proved to be mycosic by Körbner, Pick and Kaposi. Since then men have added the synonyms red flap, jockey strap itch, etc.

To study this form at its best one should examine the thighs at their uppermost contiguous portions. From a previous statistical survey this type was found to be four times as prevalent in men as in women. It is found in the great majority of instances on both thighs, but when unilateral it favors the left side in the proportion of more than 2½ to 1.

We seldom see the disease in its infancy. When we are thus fortunate we find that it begins as one or more minute macules of a delicate pink-red color and covered at times in the colder months with a delicate, hardly appreciable, furfuraceous scaling. If present these scales give a suggestion of delicate buffness to the lesion. The plant is hungry and the process spreads. The single lesion grows and the several infections join so that in the course of a few weeks the outermost limits of the scrotum have been reached. The area of infection is not often visible unless the legs are separated. It is evident that this plant likes warmth, moisture and relative darkness. The infected area at this stage is solid, its borders are sharply defined. If it arose from a single focus the periphery is a continuous gentle curve; if from two or more points the outline is mildly serpiginous. The process in these mild restricted forms is not often itchy and is the most easily curable of all varieties of epidermophytosis. This form, unlike our old-fashioned tinea circinata, seldom clears up in the centre.

There is another side to this picture. Where the soil is favorable or the plant vicious we see an extension of the disease. The thigh, even as far as the knee, may become the seat of the infection, the pubes may be invaded, the penis or labia may be attacked, the scrotum may become involved and the perineum and the intergluteal fold to its uppermost part may be infected. Curiously enough the actual groin seems always to escape!

Each of these separate sites, save the middle

and lower thighs, for anatomical reasons presents variations in morphology and requires a separate description.

The pubic region is noteworthy only in the fact that the growth extends around the hairs but never invades them. How different from other forms of ringworm! The areas on the penis may be more elevated and assume a darker redness. Where the penis lies on the scrotum there may be maceration and rawness, perhaps due to a secondary infection. In circumcised individuals the glans penis and sulcus coronarius may present strikingly sharply bounded, mahogany-red areas. The labia majora, and at times the minora, grow darker in color and become thickened. The greater lips become dry and may develop a relative elephantiasis. The itching is practically always severe and often insupportable. The plant on the scrotum may produce a superficial redness and moisture and rawness; or a dryness and marked thickening of the skin; or again peculiar, pea-sized, red, raw-looking, dome-shaped, isolated papules. The disease on the perineum presents no marked characteristics save those of mildness. The diagnosis, if the perineum alone were infected, would be an extremely difficult one. The peri-anal and intergluteal region, on the other hand, produce symptoms in no way comparable with those of this group as a whole. Scaling is obviously absent; the redness is of a deeper hue and more angry; the anus itself seems fortunately to escape. The process, as a rule, soon leads to maceration, but we shall consider this feature under a separate heading. Itching here is usually present and of the severe type and we must differentiate this process from pruritus ani of other origins.

The macular form of epidermophytosis can and does exist on many parts of the body besides the genital and peri-anal regions, in fact we can encounter it over the whole body surface from the top of the scalp to the dorsum of the feet.

The disease on the scalp is of the utmost rarity, in fact so far only three cases have been recorded in the literature, one by one of us. Quoting from a former personal description "the follicles for the most part appeared as patulous mouths, like the openings of a fine pepper box. Between many of these orifices and covering and obliterating others was a curious, brick-red, rather glistening and seemingly fibrous, curiously tortuous, elevated tissue with no suggestion of scales. Here and there, apart from this extraordinary development, was noted a papery exfoliation somewhat like that of a partially extinguished favus."

The macular form in the axillae is quite similar to that seen on the thighs and pubes. It is usually confined within the axillary folds but may extend well onto the chest wall in front or below.

The macular form below the breasts, especially if they are large and pendulous, often produces peculiar, scattered, pea-sized papules with subsequent pustulation or maceration and rapid erosion of these secondary lesions.

The macular form on the back of the hands and feet spreads in a red, fan-shaped manner directly from the web of the implicated fingers and toes.

The macular form in the bend of the elbows presents a rounded area of distinctly fawn-colored, delicately scaling tissue extending usually equally above and below the flexure of the joint so that when the arm is sharply flexed the two areas coapt strikingly.

The macular form in and about the umbilicus is apt to assume a dull-red-mahogany color and to become moist, the probable effects of secondary infection.

The macular form on the large flat surfaces of the body presents no variations from the lesions of the upper inner thighs which we have described as the type form.

The Macerated Form (10.3%). The seats of predilection of this type of epidermophytosis are between the toes, between the buttocks, between penis and scrotum and under overhanging breasts. The clinical aspects in the latter two areas have been previously described.

Between the toes, most markedly in the fourth interspace, we find a white, clean, parboiled, usually smooth, sometimes wrinkled condition, often of some depth. In extreme cases we have more than once noted a peculiar, ovoid, egglike structure seated at the bottom of the fourth interspace. This is seemingly an unattached, noninflammatory cast. It can be easily raised and removed.

Between the buttocks beginning just anterior to the anus and in extreme instances running just beyond and above the opening of the intergluteal valley we find again the same white, clean, parboiled condition, but this time this peculiar tissue may be bordered by a narrow, red, rather

angry zone. As a further local peculiarity we have observed a longitudinal series of seemingly permanent pinhead-sized, dotlike depressions in the white portion of the macerated tissue.

Itching in macerted epidermophytosis may or may not be a serious subjective symptom. From a therapeutic point of view this type of the disease between the buttocks usually proves a most frightful stumbling-block; between the toes it usually proves decidedly recalcitrant; under the breasts and between penis and scrotum it is generally more amenable.

The Fissured Form (6.2%). This variety is not common. It is practically limited to the hands and feet and especially in those types which have been excited and overstimulated by treatment or by too much soap and water. Fissures in this disease, therefore, usually seem to be the product of overstimulation. As would be expected, they are apt to form in the drier types of the disease and thus we encounter them most frequently in the scaling and in the hyperkeratotic varieties of the infection. Their depth varies directly with the thickness of the earlier primary stage of the process, and thus we find them most highly developed in the calloused heel. On the fingers and toes their usual seat is at the respective junctions of the third phalanges and the metacarpals and metatarsals, practically always lying in a transverse direction. On the heels they usually assume a horizontal or oblique direction. When seen on the palms they run in any direction. At this especial site one sees one of the rarest of all types (save the scalp) of epidermophytosis. I refer to what I have previously nicknamed "the railroad map" form of the disease. Take, for instance, a railroad folder showing the many roads focussing at Chicago, or again the map of Pennsylvania, and note the network of lines. So in this type of epidermophytic palm one sees multitudinous, delicate, superficial, criss-cross lines, sometimes cuticolored, sometimes black, running over the palms.

The Papular Form (3.5%). Papular epidermophytosis is not common and there is not much to be said about it. Perhaps the scrotum is the seat of predilection and here we see rather large papules which tend to be isolated and to be a full red and to be moist. Elsewhere papules are smaller, and less red and less moist.

The Callous Form (3.4%). The callous type is seemingly more prevalent than my statistics indicate. The favorite site is unquestionably the feet and the calluses develop in one of two places, over the transverse arch and on the heel. In the former situation the callus lies transversely, it is curiously translucent and it is apt to be of an orange tint. The surface is always smooth, the outlines always sharp. It varies in size, but it tends to fill up this entire space. On the heel the callus usually takes the form of a horseshoe surrounding and covering the periphery rather than the entire surface. Here the new growth is more apt to be uneven on the surface and to be opaque and the color to be a dirty white, but more than one example has exhibited a curiously canary-yellow hue. The depth of this callus varies greatly. This latter type is one of the most difficult to cure. If we succeed in macerating it sufficiently the underlying skin is of a pure pink shade.

The Keratotic Form (2.6%). We find this type of the disease more frequently upon the palms and soles than elsewhere. It is apt to present round, symmetrical, small pea-sized lesions sometimes projecting above the surface, sometimes imbedded in the horny layer with often a well-marked, surrounding, sunken rim. It seems very often to succeed a previous vesicle. The process does not seem to simulate the arsenical keratotic palm.

Warts, if they may be included at this juncture, occur rather more frequently than normal on the epidermophytic sole but apparently present no abnormalities. It is obvious that this pathologic surface offers easy ingress to superinfection.

The Lichenoid Form (1.7%). Lichenification may occur on epidermophytic surfaces as on any other chronically pruritic skin. The favorite seat is on the upper-middle inner thighs and here we find the typically brown or chocolate colored, sharply rounded, slightly elevated areas of varying size and with surfaces covered with delicate interlacing whitish lines. Itching, the source and origin of this secondary cutaneous phenomenon, is usually severe and if scratching is not prevented the infiltration and elevation of these circumscribed plaques continue to increase.

Fortunately, in this form of epidermophytosis, we have several methods of rather successful therapeutic attack.

The Purpuric Form (0.08%). This type is so rare and so closely follows the well-known objective characteristics of purpura that further description seems unnecessary.

Nail Infections. One hesitates to lay stress upon the clinical characteristics of any nail affection for the anatomical structure of the nail plate is so simple that many pathological processes present the same clinical features.

This dictum holds true in epidermophytosis. Nothing specific can be claimed for this disease. When infected the plate loses its translucency, becomes yellow and opaque, its surface becomes rough and friable and in certain instances becomes hyperplastic. At times the nail bed becomes involved and may thicken inordinately. One nail or all may share in the process. The cure is always difficult and usually extends over months.

Epidermophytides (2.5%). The word epidermophytide signifies a lesion accompanying epidermophytosis in some other part of the patient's body. Such a lesion is not produced directly by the plant itself but is probably induced by toxins derived from the actual epidermophyton growing on some other area of the infected individual's skin. We have analogous processes in tuberculosis and in the older, more familiar types of ringworm.

Unlike tuberculides, which are very multiform, epidermophytides, as we thus far recognize them, appear only as macules, sometimes small and numerous, but more often as large or larger sheets of well-defined, pink, delicately scaling erythema. Search for the epidermophyton always proves futile. The lateral chest wall, the abdomen, the thighs and legs are the usual habitats of this interesting type of the disease.

The treatment, of course, lies in the eradication of the causative and more or less distant infection.

As a final clinical observation let me state that hyperidrosis seems to be a relatively frequent concomitant of epidermophytosis, in all probability a precursor of this infection, for we recognize that moulds flourish on a damp surface.

Such is the long and complicated story of the clinical appearances of this polymorphous infection. It is surely an interesting disease, the late recognition of which has decidedly lowered the incidence of certain inflammatory types which we formerly called eczema, eczema marginatum, dyshidrosis and certain examples of dermatitis infectiosa eczematoides. This disease must be rapidly becoming epidemic, as witness its recognized and steady increase in one man's private practice from three cases in 1910 to 148 examples in 1925. Naturally, a certain percentage of this extraordinary increase is due to a growing knowledge and recognition of the disease but this argument would prove convincing to a decreasing degree with the passage of years of experience. Under such circumstances it becomes necessary for us guardians of the health of our communities to familiarize ourselves with the disease in all its aspects and to combat its increasing inroads.

TREATMENT

Our last chapter is rather a depressing one. The cure of this disease, as is so often the case in medicine, lags far behind our clinical and mycological knowledge. Some few cases show a surprising inclination to disappear rapidly but the of these infections yield painfully slowly to our best therapeutic efforts.

Our first endeavors should be directed toward confining the invasion of the parasite to its present sites and toward preventing its spread to other members of the patient's family. All infected areas should be covered and kept covered by sterilizable garments, the hands within loose cotton gloves, the feet within cotton socks, the body within cotton underclothes. These should be worn day and night and replaced by similar boiled clothes every twenty-four hours. Silk and wool and leather should never be allowed to touch the infected skin. Patients should never stand upon a shower-bath floor without socks upon their feet. Sponges, cakes of soap and towels should be replaced by sterilized gauze, liquid soap and paper towels. Running water should be used when possible rather than water confined within a basin or a tub.

Secondly, we should bear in mind that water is always irritating to a skin infected with epidermophytosis.

Insistence on these facts is prerequisite to a cure. With these preliminary warnings thoroughly inculcated into our patients' minds what local treatment shall we prescribe? Let us realize

fully that at present we have no specific internal or external drug. What then can we do?

When confronted with vesicles we should open them aseptically as fast as they develop and then employ an aqueous solution of permanganate of potash 1:100, or a saturated watery solution of picric acid or, according to Dr. Graves of St. Louis, dust the freshly drained vesicle with aristol and apply with a glass rod the following: ether 2; balsam of Peru 4; flexible collodion 32. In addition to any of these methods we have found extremely serviceable a hot sandy beach on which the patient should walk barefooted for an hour or more a day, taking pains to crunch the feet deep into the sand at every step. Hands should be pushed into the hot sand but care should be taken to move to fresh areas on the beach every few minutes.

Scaling, macular and fissured forms are benefited more or less by one or more of the following ointments: Ung. Whitfield No. 1: Acid salicyl. 4, Acid benzoic 8, Adipis benzoat. 32; or Ung. Whitfield No. 2: Acid salicyl. 1, Acid benzoic 1.6, Paraffin moll, 8, Ol. cocois nucifer, 24 (this ointment must be kept cool or the oil separates badly); or Acid salicyl. 2, Sulph. precip, 2, Adipis benzoat. 32; or, according to French writers, an ointment of chrysarobin; but this drug is not successful in New England victims of the disease.

In macerated epidermophytosis we may try the methods advocated for the vesicular forms of the disease; or we may apply an ointment of crude coal tar, viz., crude coal tar 2, zinc oxid 2, vaselin 32; or an ointment devised by Dr. E. Wood Ruggles of Rochester, New York: phenol, 0.65, zinc oxid 6, ung. picis liquidae 10, ung. aq. rosae 20.

Calluses, keratoses and infected nails should be macerted in potash, neutralized with fats and then scraped with a dull knife day after day.

Lichenifications and hyperidrosis can be decidedly benefited by x-rays.

Despite any or all of these various therapeutic attacks the average infection of epidermophytosis will defy us for months. Time, patience and fidelity, however, will sooner or later triumph and, except in the most desperate case, the patient's long weary efforts will be crowned with success.

THE COUNTY SOCIETY AND COUNTY SECRETARY'S RELATION TO THE STATE SECRETARY*

WILLIAM D. CHAPMAN
Ex-Secretary, Illinois State Medical Society
SILVIS, ILLINOIS

There is a very brief comment which may be made upon the relation of the county secretary to the state secretary which is pertinent and everything else which may be added is not pertinent. The relation of the state secretary and the county secretaries always is first one of service, later of fellowship and later of friendship, if the county secretaries and state secretaries agree and make it a relation of friendship, and that latter is the most pleasant but is by all odds the least important. There need be no personal friendship between the county society secretary and the state society secretary, but there must be cooperation and there must be service, and that spirit of service is the life of the county society and it is the life of the state society. The State Medical Society does not depend so entirely or absolutely on its secretary as does the county society. The State Society has its work divided among other officers and committees. The county society being a minor part has its work almost wholly centered in the elected officers of the society and the secretary becomes in almost every case the one single executive officer to whom every member looks for action. Being an executive officer of that society the secretary may if he will, and usually does, represent his county society without criticism and without question upon all matters which have to do with the state society.

The items which I have considered of importance concern the normal everyday, ordinary action of society work and are very few. Things move smoothly between the county society's secretary and the state secretary when the correspondence is properly attended to, when the items of membership and the collection of dues are properly reported. The state secretary is concerned with the matter of dues, the items of membership and the mailing list of the JOURNAL; and he can do nothing unless he is adequately supplied with up-to-date information from the county secretary. The addressograph man must

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have a correct list of members for the JOURNAL and if the county secretary fails to notify the state secretary of a change in address, the member does not get his JOURNAL. The member becomes disgruntled and eventually the state secretary gets an inquiry as to why he has not received his JOURNAL. We had some time ago a number of instances like that. There was a time when the Secretary of the State Medical Society was in the service of the U. S. Army and his work was not done by himself. Part of it was done by his wife, part by his office assistant and part by his secretary. It happened that many members, also abesent, did not pay their dues and were dropped. They were honest and did not intend to defraud the state society and came back from the army feeling they were members in good standing and it never occurred to a good many of those men that their dues were in arrears. It developed later on that some of those men were dropped from the JOURNAL list. In many counties a new secretary had been elected and the old secretary had not transferred the records, with the result that misunderstanding was frequent. That thing has been about ironed out but it showed that every county secretary in transferring the record of his activities to his successor should and must transfer a living, active, up-to-date record of exactly what happened to each member of the society. There are many of our men who value a consecutive, unbroken record of membership very highly indeed, more highly than some of the younger men can entirely appreciate. Our county society has a provision in its by-laws that any man who has been a member of the society for 20 years and who has attained the age of 70 years, will upon his application become a life member of the society, obligated to pay no dues, entitled to all the privileges of membership except the right of suffrage. It is his for the asking. That makes the matter of continuous membership important. If the county secretary in transferring records from year to year will turn over correct ones, much of this misunderstanding will be avoided.

The State Society secretary in the course of the next few weeks or few months will notify every man who has not paid his dues that he has been dropped; but the communication will be made through the County Secretary, whose duty then becomes that of avoiding injustice by promptly interviewing the member and reporting back. The State Society must not be considered a business institution, but it is important that dues be paid. The purposes of the Society are outlined in our constitution and by-laws. They have to do with fellowship and service more than with business. According to the constitution and by-laws I think we may expect to find that the secretary of the State Medical Society will always be willing to cooperate with the members in the payment of dues. I have found it so and I believe that Dr. Camp finds it so and I believe that Dr. Gilmore found it so. I believe it is proper that wherever possible if there is any doubt, the secretary of the society should settle the controversy in favor of the member and mark off any item which the by-laws will permit him to mark off, and make it a matter of record. Whenever that does not happen, whenever the state secretary's record is not clear, the secretary must have some item, some value, some question which he may enter upon his book as a reason for doing this or that and the county secretary should not hold it against that man as a personal matter. That has been done.

There is no greater joy than the feeling of comradeship and the feeling of friendship which develop between the state secretary and the county secretary when they cooperate and it gets to be a personal friendship which cannot be discontinued and which will last during the lives of both men.

THE RELATION OF PSYCHOTIC AND NEUROTIC DISTURBANCES TO HEAD INJURIES*

GEO. W. HALL, M. D.
CHICAGO

The subject I propose to discuss is one of practical importance and should be of interest to the various branches of medicine and surgery.

It is a widely held opinion especially among the laity that severe injuries to the head are directly causative of mental defects, and that where psychoses develop in a person previously apparently normal with the history of a head injury, the two circumstances are almost invariably connected. While a study of the literature gives a certain amount of support to this view, it seems, however, rather probable that the

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part played by cranial trauma in originating organic and functional neuroses and psychoses is greatly exaggerated. Generally speaking, when such conditions appear and persist after a trauma, there existed a pre-traumatic degenerative or other predisposing condition, the traumatism merely acting as an excitant or intensifier of this condition.

Statistics do not support the view that trauma often directly causes definite psychoses. Harrington [1] found from statistics reported by several authors that the proportion of mental diseases ascribed to head injuries was comparatively small, and in a series of 5,429 cases which he investigated only 17 were diagnosed as psychoses due to head injury.

The whole question of post-traumatic neurotic and psychotic sequellae may be considered from two points of view: First, whether a cranio-cerebral traumatism can of itself directly cause anatomical changes which bring about psychotic and neurotic disturbances; secondly, whether a cranio-cerebral traumatism merely "lights up" a latent cerebral process to such an extent as to precipitate a psychosis or neurosis.

In this paper I propose to touch upon these two aspects of the subject in the light of what the literature shows and also to report some cases within my own experience.

In regard to head injuries being directly provocative of psychoses, of a tendency toward which there was no pretraumatic evidence, there are many cases in literature which seemingly support the affirmation of this view.

Richardson [2] in 1903 reported the case of a boy who had a severe injury of the head followed by mental changes and very frequent attacks of psychic epilepsy. A trephine showed no fracture but only some bulging of the dura. The boy was restored to normal mentality following the operation.

Glueck's case [3] was that of a patient, previously of normal mentality, who, following a severe cranial injury, developed motor aphasia, epileptiform seizures, confusion and memory defect. Later he devolped a hypomanic state.

Marie [4] reported a somewhat similar case after a scalp injury over the motor area of Broca.

Cases reported by MacCurdy [5], Rogues de Fursax,[6] Thom and Fenton,[7] and Harrington,[1] among many others, illustrate how brain concussions associated or not with cranial fracture were followed immediately by a more or less lengthened period of unconsciousness. After regaining consciousness, the patient has a memory loss which may be retrograde as regards the traumatism; he is confused, disorientated, irritable, excitable. While most of these conditions improve and disappear with time, there is often a permanent change in personality.

Nouet's case [8] was one in which visual and olfactory hallucinations followed an extensive gunshot right temporal injury, and which persisted when the author investigated the patient three years later.

In one of Harrington's cases [1] a man previously normal and industrious, of kind disposition, became entirely changed in personality following recovery from a cranial fracture. He became emotional, idle, irritable, and paranoic. He had to be committed to the State Asylum in which he died a few years later.

In one of three cases reported by Jacob,[9] the trauma was insignificant and the brain concussion apparently only slight. Psychic disturbance was not observed till 12 hours later. This was followed by a period of confusion and disorientation lasting several months and there was a permanent hiatus in memory for the entire period of the psychosis. It is unusual that such a slight concussion should produce such severe mental disturbances.

The patients in the cases mentioned were mostly young, well developed, vigorous men, with no hereditary taints nor any history which might suggest a disintegrating cerebral process.

As may be surmised, the recent war furnished abundant clinical material of this kind. Most of these war cases were not, however, studied from the beginning from a psychiatric standpoint. Hadley [10] had the opportunity of making a neurologic and psychiatric study of a number of such cases in the Walter Reed Hospital, Washington, D. C., and gives the clinical histories of thirteen of these in which hereditary influence or previous personal histories could apparently be excluded as incriminating factors in connection with the conditions developed. In four of the thirteen cases, there was commotio cerebri alone, without cranial fracture following a severe traumatism. Many of the cases were gunshot injuries and in some there was a residual foreign body. In all these cases there was the same general symptom-complex, i. e., a

more or less long period of unconsciousness; amnesia, retrograde or not; confusion, disorientation, and irritability. Hadley says that these patients, after a more or less lengthened period, adjust themselves quite well, but there is in some measure a definite and permanent change in the personality. Hadley did not observe either psychotic or neurotic manifestations in any patient in which there was no pre-traumatic taint.

Roeper [11] in 1920 published a number of cases dealing with slight mental disturbances after brain injuries. In some such cases the only apparent result was a slight mental change which Roeper calls a traumatic-psychopathic constitution, in which there is neither epilepsy, nor marked psychosis, nor functional neurosis. The features of this condition are affective and emotional instability, as shown in contrast to previous behavior; high temper; quarrelsomeness; dissatisfaction; depression; and intolerance for toxic thermic, optic, and acoustic stimuli. Such patients show intolerance for alcohol, intensive mental or physical work, lack of interest in their environment (without any real intellectual defect), dullness, lack of initiative, and poverty of thought. In the economic sense, Roeper considers that the reduction of efficiency in the traumatic psychopathic constitution may be placed at from 15 to 40 per cent. In the cases coming to Roeper's attention, traumatic epilepsy occurred rather frequently and mental changes were present in from one-fourth to one-third of those sustaining severe brain injuries.

Regarding the mechanism by which psychic disturbances may be directly brought about by concussion, Harrington[1] thinks that in the lighter types of simple concussion, the result of the traumatism may be an edema of the brain which gradually becomes completely absorbed. When the brain injury is extensive, it would seem not improbable that after an edema exists in a given area for a considerable period, it might set up degeneration of the cellular and other brain structures. Jacob[9] remarks that it is known that commotion regularly causes diffuse changes in the nervous system, both in the cortex and in the basal ganglia, and that this fact must not be lost sight of in accounting for post-commotional disturbances.

In an individual with pretraumatic psychopathic traits, the post-traumatic picture may be greatly colored or quite completely altered—such will include hysterical attacks, psychic epilepsy and paranoid trends as well as manic-depressive mechanisms in general.

From the point of view of whether a cranio-cerebral traumatism can be causative directly of a psychosis where none previously existed, it seems fairly reasonable to conclude from the literature that although there is no clinical entity which may definitely be termed a traumatic psychosis, yet there has been repeatedly found, following brain injury, a detrimental alteration in the personality of the patient, and which might be termed a traumatic-psychopathic constitution as Roeper calls it. When it exists, and it may exist after an apparently trivial cranio-cerebral injury, there may be a serious loss in the economic value of the patient which ought to be taken into account in determining compensation.

As Hadley remarks, the final result in actual cases depends upon the severity, type, and location of the injury. Almost any conceivable neurologic condition may be presented, and where grave defects coexist, permanent invalidism may ensue; even progressive mental enfeeblement may be observed.

Trotter,[12] in writing on this subject, mentions a group of phenomena following head injuries which includes headache, giddiness, defects of memory, lack of concentration and attention, alterations of disposition and mood, and certain kinds of mental deterioration. In his opinion, "the above group of symptoms is a common sequel to head injuries of all grades of severity and bears no relation to the amount of gross injury that has been inflicted." In those cases receiving an injury to the head by falling some distance to the ground for instance, the patient may receive a definite concussion of the brain, followed by a short period of unconsciousness after which the patient may sit up or even travel alone to his home only to develop a severe headache, dizziness, nausea, ringing in the ears, and a general feeling of lassitude.

In another class as mentioned also by Trotter, the patient may receive a blow to side of the head and in such cases concussion may be absent and the patient can describe in detail as to how the injury was received. He concludes that headaches, following trauma to the head, are due to definite organic disturbances to the lining membrane and its septa in the skull. And in

those cases accompanied by concussion, the brain is edematous.

Ewald Stier[17] rather inclines to the belief that most of the post-traumatic neuroses are based on the desire for compensation and that where the symptoms—vertigo, headache, pain in the limbs, insomnia, mental and physical fatigue, etc., persist over a longer period than a year, and the patients are apparently permanently invalided, the "lump sum" settlement results in a rapid recovery. He states that "accident desire" and "accident compensation" are factors;—therefore, "accident neuroses." In this connection he states that where people are hurt while working at an occupation they really enjoy and which is a source of stimulation, traumatic neuroses seldom develop. For instance, jockeys who receive severe head injuries, seldom develop a neurosis. The same statement applies to football players who frequently have cerebral concussion. He further states that the symptoms above enumerated may be produced as the result of fright following an earthquake, or receiving bad news from home, etc., producing a disturbance in the vegetative nervous system.

I will now consider what the literature shows in regard to another phase of the subject; that is, whether a cranio-cerebral traumatism acts as an excitant of a latent cerebral infection or as an intensifier of such a condition pre-traumatically manifested. While it seems difficult to understand and contrary to the facts of neuro-biloby that a single traumatism could directly cause a progressive neural degeneration, much less a progressive neural toxi-degeneration, however, it is plausible that a traumatism may be a factor in setting free agencies which can bring about such conditions.

As regards organic brain disease, it has been supposed that cranial traumatism can cause cerebral tumor, disseminated sclerosis, epilepsy, etc.

Mendel[13] reported some cases of cerebral tumor apparently associated with cranial trauma, but the English authority, Wilson[14], states, in connection with this that although he observed a vast number of cranial injuries during and after the war, he never found any evidence that cranial trauma may originate such a tumor.

Disseminated sclerosis is now considered as an infectious process. Wilson quotes L. F. Barker[15] who excludes trauma as a cause of sclerosis, although he thinks that it may "light up" a latent case or exacerbate one already manifest. Wilson, himself, in 900 war neurologic cases, observed none with true traumatic etiology and saw only two cases in his practice in which trauma could be considered as a "lighting up" factor. Yet it is often alleged as a cause in courts and in compensation claims. In regard to one such case, Wilson says, "If we dismiss the hypothesis of mere coincidence, we are compelled in fairness to suppose that a latent organic nervous disease (sclerosis) was "precipitated" by a relatively severe injury, though we may be incapable of framing any reasonable theory as to how such an injury might act."

Matzdorff[16] quite recently reported a case of multiplex sclerosis cerebrospinalis, observed for three years, the first symptoms of which appeared ten days after a cranial traumatism in a previously apparently healthy man, age 22 years. Matzdorff considers that the trauma created a *locus minoris resistentiae* for existing pathogenic microbes in this case.

The question of post-traumatic epilepsy is a constantly recurring one. Wilson quotes war statistics which show that of 18,000 cases of gunshot or other cranial injuries, less than 5 per cent. developed epilepsy. The study of these and other statistics shows that something more than local tissue changes is necessary for the production of epilepsy; and, according to Wilson, the determining agent is an inherited or inborn constitutional predisposition. In 80 per cent. of his own cases of traumatic epilepsy, Wilson found a history of such a predisposition. Therefore, only a very small percentage of cranial trauma cases develop epilepsy, and by far the greater part of this small minority show a previous disposition to it.

There remains the question of neuro-syphilis, tabes, and general paralysis. Can a cranial traumatism initiate a morbid process on the part of the spirocheta pallida which would otherwise have remained latent? Wilson mentions the case of a man, previously apparently healthy, who, within a month after a severe shock (without visible injury) showed the initial symptoms of general paralysis. Discussing this case, Wilson remarks that in general paralysis there are known periods of remission and of exacerbation. The case quoted may have been one of ordinary exacerbation from within. The modifications arising in the course of general paralysis are the

result of intrinsic, not of extrinsic factors. Wilson is of the opinion that unless it can be proved that the first symptoms of general paralysis or of tabes actually arises within, say, 48 hours of an accident or are augmented within this period, it is illegitimate to argue for a causal relation between the traumatism and the symptoms, as it is generally conceded that in genuine traumatism of the nervous system, symptomatology is practically continuous from the very beginning of the traumatism.

We may thus conclude that where pathogenic organisms are present in the body, a head injury provides a suitable breeding ground where they may settle and produce a degenerative process resulting ultimately in a neurotic or psychotic condition. A cerebral traumatism, like a traumatism anywhere else, although it may heal, yet may leave an anatomically weakened region which is less resistant to disease than if it had not been injured. Judged in this light, a craniocerebral traumatism, even a simple concussion, may be of very great etiological importance in starting a degenerative cerebral process with resulting neurotic and psychic manifestations. Although such results may be observed in some cases, we must not, however, generalize. Experience gained during the war has shown that the general nervous and psychic symptoms accompanying concussion, both cranial and spinal, pass off eventually with a complete restoration to normal; but if these symptoms persist, in the absence of any evidence of objective changes, it may be taken as a rule almost without exception that the case has ceased to be one of concussion and that some other underlying motive is causing the symptoms. Very frequently such a motive is the desire for compensation which is a natural human failing. Motives connected with pecuniary compensation mostly have a great deal to do with simulation and exaggeration of nervous and psychic symptomatology which almost invariably rapidly disappear as soon as the claim is settled. Claims having a basis of this kind have multiplied since the introduction of compensatory legislation and there is perhaps no type of injury in which certificates are so easily given by the medical profession as in so-called "nervous" injury cases, even years after the genuine effects of the injury have vanished.

Matzdorff thinks that Wilson's time limit is too short and that the time limit for appearance of symptoms should be extended to three or four weeks. Matzdorff thinks that traumatism by a commotion of the central nervous system creates in it a *locus minoris resistentiae* which can be attacked by a simultaneously existing or shortly thereafter arising infection or intoxication. The local disease is thus due to the injury. The injury to the central nervous system may be so slight that, of itself, it might have run a symptomless course were no concomitant disease process present. But under such circumstances the first nervous symptoms ought to appear shortly after the injury.

Furthermore, Matzdorff thinks that when any part of the central nervous system has been severely damaged by an external traumatism, such a region, even after clinical recovery, still remains a *locus minoris resistentiae* which offers a point of attack even after years for intoxications or infections. Inversely, any position in the central nervous system in which a toxic or inflammatory process has once been localized can be more easily involved by a traumatism than completely healthy parts. I wish to cite the following case histories, presenting rather interesting points.

Case 1. On July 30, 1924, examination was made of M. S., aged 22, married, with a history of having been perfectly well until June 25, 1924.

While walking along the street at the corner of Van Buren and Wells Street she was struck on the head by some falling bricks and was rendered unconscious for perhaps an hour or two. The x-ray reports are negative for any fracture of the skull, but showed evidence of a fracture of some of the small bones of the right foot.

Neurologic examination today shows that the eyes respond normally to light and to accommodation. The optic nerve discs are normal. There is no evidence of any cranial nerve paralysis, nor of paralysis of any member of the body. The deep reflexes in both the upper and lower extremities are present and lively. There is no ankle clonus and no positive Babinski sign on either side. She has no bladder disturbances and no disturbances of the bowels. There is no ataxia of either the upper or lower extremities.

The patient's complaints are pain in the head, some dizziness, and weakness of the lower extremities on attempting to stand or walk. She is rather slow in her response to the tests on examination and in her general conversation.

Taking into consideration the history of the case, along with the clinical findings, a diagnosis of commotio-cerebri is made, which may arise from such an injury to the head without skull fracture and without any real organic changes in the brain substance.

In this case a good prognosis should be made, but

it is entirely too early to make a definite statement as to just how soon recovery will take place. Considering the patient's welfare as being the most important thing, she should be placed in some good health resort where she will not be in contact with members of her family. She should be given massage and baths and psychic treatment, as well as careful attention to the elimination, diet, and sleep.

Case 2. C. L. gives a history of an injury to the head and spine on February 1, 1924. The conclusions must necessarily be based upon the history given by his wife and the superintendent of nurses at the hospital.

The history obtained brings out the fact that his disposition has changed materially since the injury; that he has wandered aimlessly away from home at different times; that he has shown mental fatigue; that at times his temper has gotten the best of him, and still at other times while in the ward, according to the nurse's statement at the hospital, he imagined that other patients were making remarks about him. His wife states that she has had to follow him around the house as he seemed not to be able to get around unassisted. He showed defect of memory and would become mixed up as to where he was. Some days he is very decidedly depressed and at other times is in rather a satisfied state of mind. Patient has been seen on two occasions and a physical examination shows that the eyes respond normally to light and to accommodation. There is no evidence of any paralysis of the eye muscles. The optic nerve disc is normal on both sides. There appears to be a very slight paresis of the left side of his face. The extremities are normal; the deep reflexes are all normal; Babinski sign is absent on both sides, and he gives no history of any bladder or rectal disturbances.

On first examination he was rather indifferent in his attitude. He did not care to be bothered and appeared rather fatigued. He complained of pains in his head over the site of injury, on the right side. He was rather indifferent in his answers to questions and apparently became easily tired out after being questoined for a certain length of time.

No definite delusions or hallucinations could be developed. He appears very depressed mentally. On second examination, the following day, he was much more alert mentally and answered questions much more promptly.

The conclusions are that the case should be classified as one of post-traumatic constitution, based upon the history given, including especially his change in personality, the presence of headaches, his increased irritability at times and his outbreaks of temper; his tendency to brood over his complaints, and his inability to concentrate his thoughts. Such conditions may arise following a head injury, either accompanied or unaccompanied by any definite changes in the brain substance itself. Sufficient time has not elapsed to allow one to make a definite prognosis in this case. Sometimes such cases improve very materially in the course of time. On the other hand, mental deterioration may develop later on.

Case 3. O. O., aged 37 years, married, blacksmith by trade. Patient gives a history of having received an injury to the skull on December 28, 1923, when a plank, 2 inches by 8 inches and 6 feet long, fell a distance of 25 to 30 feet from a scaffold and struck him on the head. This rendered him unconscious for a time and after he regained consciousness he was taken to the hospital where he remained three days and showed some improvement during that time. He was then allowed to return home. At that time he complained of headache and attacks of vomiting. He stayed in bed for a period of about six weeks, but he was not able to return to his work until three months had elapsed from the time of his injury. Then he worked two days and had to quit because of disturbance from the noise. He stayed at home for two weeks and returned to work, but the noise still troubled him, and after working for about two weeks he had to quit entirely. He was then transferred to the receiving room where he has been taking orders and works about five hours each day.

Examination reveals the fact that he has dizzy attacks at times, especially when he bends over; he has fears that he will not get well; he also has fears when in a dark room, and has to depend upon someone's being with him. He has decided mental outbreaks, and it matters not whether he is talking about pleasant things or sad things. He received a letter from home and although the letter stated that his family were all well, he began crying. He shows some outbreaks of temper at times. Objective examination reveals the fact that he has a fine tremor of the hands, that he perspires easily, and that he has a low blood pressure.

There is no evidence of organic disease of the central nervous system. The eyes are negative and the optic nerve discs are normal, showing no evidence of intracranial pressure.

The conclusions are that the patient is still suffering from the effects of the trauma to the head, and his trend of symptoms would lead one to diagnose the case as one of commotio-cerebri. He should eventually recover from this state, but it will take several weeks for him to overcome these emotional manifestations.

It is recommended that he be given light work, that he be placed in the hands of some one competent to go over his complaints with him from time to time, and develop in him all the optimism possible. At the same time careful attention should be given to his environment, to his sleep, and to his elimination.

GENERAL CONCLUSIONS

The general conclusions that I think may fairly be arrived at are the following: Brain commotion does not of itself cause tumor or other organic disease of the brain, but where such appears after a traumatism, there already existed some underlying cause. The traumatism merely exacerbates this existing condition. This applies to existing bodily infections which, prior to traumatism, may have been latent.

During the recovery process from a traumatism, temporary psychoses and neuroses may be observed in individuals previously entirely normal and which disappear on recovery from the injury. In a percentage of traumatic cases a greater or lesser degree of change in the personality of the patient may be permanent after a brain traumatism. In these patients there was probably some pre-traumatic disposition not manifested in the history. Where a history of manifest cerebral changes is known the results of such changes may become accentuated after trumatism. Where the neurotic phenomena, as already given, exist for more than a year without evidence of organic changes in the central nervous system, "the lump sum" settlement will hasten a cure.

104 S. Michigan Avenue.

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DISCUSSION

Dr. J. P. Simpson, Palmer, Ill.: A very striking case, illustrating the subject under treatment is that of an 18 year old boy of good family history, who was struck on the head by an empty beer bottle, while watching the Hallowe'en pranks one night.

He came to me at midnight and I applied three sutures to a scalp wound, and told him that this trauma might lead to brain trouble, even to brain abscess, years afterward. Professor Bauduy, of Washington University, had told of a brain abscess that developed in a man twenty years after he had been struck upon the head during the Civil War rioting in St. Louis.

When about twenty-five years old this man, that I had treated, married an excellent good natured young lady; and they got along happily for two years or more, and then he began to develop a morose disposition, with fits of jealousy, that had absolutely no foundation in fact. In his dealings with people of the community, he would resent the least approach to familiarity.

He was placed in the asylum, and I still forgot about the beer bottle incident, until the hospital physician made inquiry, through his mother, if he had ever had such injury. This fellow, soon after the injury, had told his mother of my warning, but could not tell of it after his mind became unbalanced.

Another case comes to mind. The family history, however, might easily account for insanity. Cousins married and produced a large family—some of them of good average intelligence, and some of the moron type. The man of whom I speak was one of the brighter ones of the family. He was very deaf from early otitis. While walking on the highway, a runaway team, carrying the broken buggy pole between them, ran him down, striking him on the occiput with the pole end. Within four years he became violently insane. Got him a hunting license and carried a revolver. One sister had committed suicide ten years before. We sent him to the asylum. His brother thought that we had "railroaded" him there. Paroled him out, but was very glad to let him be taken back within a week or two.

Dr. Charles F. Read, Chicago: The statistics for the State Hospital admissions for the past few years show very few cases in which trauma has been quite evidently the source of the mental disorder, from one-half to one per cent. So not many people apparently are so injured about the head as to require detention in state hospitals. There is no doubt but what trauma precipitates mental abnormalities. I remember two cases of boys who suffered severe traumas about the head and who came to us because of psychopathic behavior. In neither one did we have a history of the behavior of the patient prior to the injury, so we could not tell whether the condition was primarily traumatic or merely precipitated by the head injury. Another case was that of an old lady struck by a taxi who almost immediately, according to the relatives, developed symptoms characteristic of senile dementia. Apparently the senile condition was lying dormant and was precipitated by the injury.

As to traumatic epilepsy, we must be very careful in determining whether the trauma was the cause of the fit, or the fit the cause of the trauma.

As Dr. Hall has said, the traumatic neurosis is the means of escape from a disagreeable situation. We are all quite familiar with the use made of this mental mechanism by many individuals during the World War, our so-called shell-shock cases.

The diagnostic points to be emphasized are, first of all, a very thorough history of the individual prior to the injury. What sort of a person has been injured? What sort of make-up did he have? The next of course is the nature of the injury and the immediate symptoms. Following that, was there a gradual or sudden development of the mental disorder or was there a period over which no symptoms appeared and then a development perhaps consequent upon stress or strain in the patient's life and the desire to secure compensation? And finally the symptoms in themselves, confused states, periods of violence, susceptibility to alcoholic stimuli, and gradual let-down.

Dr. Edward Bowe, Jacksonville: No single question in medical legal procedures has discouraged me as much as the very question before us here.

At the present time, in the economic and financial condition of the country, this question is important, in connection with placing the world's war veterans in their proper place.

And, as Dr. Hall has well said, in the case of personal injury, the question has a broad field.

These rehabilitation cases pass through the hands of men we know to be good men, but in the hands of some man able to determine the pathology, the whole case is simple.

There is an outstanding prejudice both among attorneys and physicians against this type of case.

Dr. George W. Hall (closing): There are several things of interest to me because one is interested more in the subject that he comes in contact with frequently.

Now, we could continue this discussion for an hour or two and not be half way through. There are some things of vital interest. As to war injuries we know there were a great many neuroses developed in the war. When a young man was injured while in the line of battle he didn't develop a neurosis but the individual who received a certain concussion or was gassed, and so on, was the one most likely to develop a neurosis.

Reasoning, then, from cause to effect, one can easily infer that the first patient didn't need any reason to excuse him from going to the front again, whereas the other individual, not having any evidences of injury, was more easily placed into a state of mind which would come under the classification of a neurosis.

Another thing that has been brought out is that the individual who simply treats the injury is not a real physician. He must treat the patient. And unless we are able to look at the patient in his entirety, then we are not successful in our treatment of that individual.

We must also be just as patient as possible with these individuals who do show a certain train of symptoms such as mentioned in the paper, because that individual is just as sick as though he had a leg taken off. A man mentally sick is just as sick as an individual who has an abscess or appendicitis. So many of us are not willing to take that into consideration. I recall several cases of just that kind where the physician does not seem to understand the mental state of the individual.

There is something else that I think every physician in this state should fight for; and that is for such legislation as to permit the possibility of proper conclusions in these cases, which is not being done at the present time. Industrial boards are all right. I think they are trying to make every effort to be fair. When we get a judge and two lawyers and doctors on either side and x-ray specialists, just as many on one side as the other, one swearing there is a skull fracture and the other swearing there is not, what is the result?

I saw a case last week. Three competent x-ray men were on one side and three on the opposite side. They were looking at the same plates. Three insisted there was a skull fracture and the other three insisted there was not. What are you going to do in such cases?

There is only one way to do, to get a competent medical board appointed and get it out of politics. We should have men willing to serve and have the judgments and opinions of those men summed up to be acted upon. Until that time arrives these patients will continue to be neurotic, because an attorney can make a man neurotic by suggesting a great many things. I am satisfied I have seen a great many cases develop through the actions of the attorney. He can take a patient who was working for a number of months apparently all right, and by suggesting to the patient produce a long trend of symptoms. As a result of it the lawyer gets a good fee and the patient gets a very small amount for his compensation. In other words, if the patient could have been kept at his work he could have become an asset all that time and perhaps a permanent asset to the community instead of a liability.

SOURCES OF INFECTION. CASES AND CARRIERS*

DON M. GRISWOLD, M.D., D. P. H.
Associate Professor of Hygiene, Iowa State University.
IOWA CITY, IOWA

We hear from time to time of some very weird sources of infection. From one place we hear that letters piled away in a trunk for 27 years were a source of scarlet fever. Now by definition a source is a place in which infectious material grows, multiplies and increases itself. If we would exclude milk and a few other special conditions, we find that the principle source of infectious material is the case of the disease in the human being. It is there that the infectious agent finds temperature, moisture and soil to its liking and grows luxuriantly during the early stages of the disease.

In fatal, fulminating cases this growth goes on almost unretarded, while in acute infectious diseases of short duration the defensive devices of the body are brought into play and ultimately prevent growth and multiplication. It is evident then that the human case of the disease is the greatest source of infection if we are to measure them either by the amount of infectious material given off or by the virulence of the organisms eliminated. If, then, we propose to institute preventive methods for the spread of infection it is here that we must center our attack for no doubt somewhere around 90 per cent of the cases of infectious diseases and infectious agents come more directly or indirectly from another case.

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Consider for a moment the spread of measles and whooping cough. Here we have two diseases in which, unfortunately, the characteristic symptoms of the disease, and the one by which they are usually diagnosed, does not present itself for 24 or 48 hours after the onset of illness. On the basis of careful field studies some epidemiologists are inclined to think that certain cases of measles and whooping cough give off infectious material for as long a period as 5 days before the characteristic symptoms of whooping cough or the characteristic measles rash occurs. In studying many outbreaks of these diseases I have come across instances that could only be explained on the basis of this comparatively long period of infectiousness prior to the characteristic symptoms. If then we are going to do anything in the prevention of measles and whooping cough we must seggregate those cases at the onset of illness, which is 2 to 5 days before any characteristic symptom occurs. All of us with experience know full well of the many milk, or abortive cases of scarlet fever encountered in a busy practice. Let no health officers or health organization flatter themselves that they are getting at the source of the spread of infection as long as these sources are walking the streets. Cases are and will remain for some time to be the most potent source of infection. Mild, missed and abortive cases will long remain more dangerous to the public at large than frank, severe or typical cases. Attention then must be centered around the fact that the largest amount of the most virulent infection comes from cases of disease.

The next most important source of infection is the human carrier of infectious agents. With the exception of the incubatory carrier all carriers are immune individuals. Notwithstanding their immunity to the disease their tissues are a more or less acceptable soil for the growth and reproduction of the infectious agent. The tissues of the carrier are probably not as good soil for the growth and reproduction of the infectious agent as that of a susceptible individual, but it grows there nevertheless.

An individual who is a carrier of infectious agents, while not manifesting the characteristic symptom of the disease, is an acceptable host from the standpoint of the biological requirements of the infectious agent. The body cells and the bacterial cells live in a systic relation. It is, as if there were two elements involved in immunity. One element would be the immunity of the body against the mere presence of the infectious agent. The other element would be the immunity of tissues against the toxic products of this parasitic growth. The susceptible individual has neither of these and while the carrier has immunity against the toxic products if any are formed, he does not have immunity against the invasion of the infectious agent.

Infectious agents from carriers are frequently, but not always, far less virulent than those from an active case of the disease as is shown by the studies made in many laboratories. That there is a degree of virulence in organisms from carrier cases is well known, and to this fact alone can be attributed epidemics which carriers frequently cause.

The striking variations reported in the virulence of the organisms isolated from diphtheria carriers attracted my attention some years ago.

The variations were too wide to be explained on any other basis than that we were dealing with two or more factors. Each factor could remain constant within itself but with the varying proportions of each factor as a component of the whole. The results of various investigators were bound to be vastly different and confusing.

The problem was then to unscramble the carriers in such a way that the various factors would be grouped by themselves and could be studied alone.

The grouping which we now use is the result of "trial and error method." It utilizes the information received from the laboratory to its fullest extent and makes it an integral part of the working program of the field epidemiologist. As sound medical or surgical diagnosis is based upon a history, a physical examination and laboratory reports, so are the sound administrative public health measures based upon case records, epidemiological investigations and laboratory reports. If these cannot be correlated and brought into harmony, chaos and confusion results to the detriment of public health.

The classification of carriers used is one that has a basis on all three factors that goes to make up a sound diagnosis.

For the purpose of co-ordinating the office, field and laboratory studies in diphtheria carriers we have used the following classifications:

1. Incubatory.
2. Convalescent.
3. Direct Contact.
4. Remote Contact.

Experience has shown that this classification is sound in principle and practice. This classification brings the office, field and laboratory studies into closer harmony and co-operation than any other grouping of the facts that we have tried.

Incubatory Carriers. An incubatory carrier is the individual upon whom we have identified infectious agents within the incubation period prior to the onset of the clinical symptoms. Those of us who have taken throat cultures in large numbers know full well that by the time the report returns from the laboratory some children will be found ill with diphtheria. These children carried the organisms for a short space of time without symptoms, hence they are carriers. They developed the disease within the incubation period from the culture taking so they were incubating the disease at that time. They are therefore, called incubatory carriers. Incubatory carriers harbor organisms that are 100% viulent. They have been tested on human individuals and proved so, which is probably better than the test on guinea pigs.

The degree of danger from incubatory carriers is high because of the fact that the bacilli are of disease causing type in all instances.

The length of time of the menace from incubatory carriers depends upon how soon striking symptoms present or on how long it takes the epidemiologist to locate the individual. Well directed epidemiological work on incubatory carriers will materially reduce the amount of diphtheria spread by mild, missed or abortive cases.

All known carriers should be given daily inspection for the maximum period of incubation. By this means the individual who is an incubatory carrier can be segregated at the first rise of temperature or other clinical symptoms.

If he can carry virulent bacilli for a period longer than the incubation period, he is an immune and does not need antitoxin, Schick Test or toxin-antitoxin mixture.

Probably all cases of diphtheria might be considered incubatory carriers for that short period between the time they have connected up with the infectious agent and the time the clinical symptoms occurs.

If careful throat cultures are made during this time the bacilli will be found and the person is designated as an incubatory carrier. Sometimes on receipt of the laboratory report these cases will merely be the sore throat stage. The etiology of this sore throat having been determined bacteriologically, the case should be comparatively mild if antitoxin be given in adequate doses immediately.

Convalescent Carriers. A convalescent carrier is of course an individual who harbors infectious agents after the clinical symptoms have ceased. These individuals have an immunity to the toxin of the disease but do not possess sufficient bacteriolytic substance to prevent multiplication of the causitive organism. These individuals are of interest in the spread of infectious diseases chiefly because of their mobility.

Several well directed contagious disease hospitals and health departments use the following method of releasing persons from diphtheria quarantine.

Nose and throat cultures are made daily after the twelfth day of illness and the patient released from quarantine when two successive sets of these cultures fail to show the presence of diphtheria bacilli.

In a careful study of over one thousand cases released in this way it was found that the stay in the hospital was as follows:

1 week	100%
2 weeks	64%
3 weeks	29%
4 weeks	16%
5 weeks	8%
6 weeks	4%
7 weeks	2%
more than 7	2%

It was striking that it took eight weeks to reduce the number of convalescent carriers to 2%. This is about the proportion found in the population at large.

When this point was reached, virulence tests were made and the patient released, if the organism was found to be non-virulent. Eighty-five to 90% of the convalescent carriers of diphtheria, that we have studied, have virulent organisms and they constitute a real menace to the control of the spread of infections. Our figures show however, that as we recover the organisms further and further from the time of the attack the per cent of virulent organisms falls. This study is not ready to report at this time but will be presented later.

Direct Contact Carriers—The direct contact

carrier is a carrier who is in direct contact with the case. Although he gets his organisms directly from the case where they are most virulent his immunity is sufficiently high to prevent the development of the disease. This individual usually has a high personal immunity and if the experience is repeated, comes to have little fear of contracting contagion. Many physicians and nurses are in this group. I have several times used diphtheria bacilli from my own throat for class-room demonstration. On one occasion I used a meningococcus for class work which I had recovered from my own throat.

Direct contact carriers are always immune and always highly immune. If I had evidence that a person had been a carrier of virulent diphtheria bacilli for a period longer than the incubation period of the disease I would feel that this person was immune as thoroughly as he would if he had a negative Schick test. A direct contact carrier is immune and will not contract the disease until some unforseen circumstances takes away this immunity, which does not frequently occur.

As a result of careful studies, as yet too small to use for generalizations, it appears that from 1/5 to 1/3 of all people coming in daily contact with a diphtheria patient will pick up and retain the diphtheria bacillus. The proportion of these people who develop the disease as a result of this is in direct relation to the age group susceptibility.

Where there are no children in the quarantine, the attack rate of the disease is low because about 2/3 of all adults are immune to diphtheria. This means that there is a correspondingly high rate of direct contact carriers. Diphtheria bacilli have been of virulent type in approximately 50% of the direct contact carriers we have examined. They therefore, constitute a real menace to this extent and there should be adequate administrative control.

Remote Contact Carriers—A remote contact carrier is a carrier who has *not* been in contact with the case but who has obtained his organisms probably from some other carrier. This type of carrier is usually immune but such great reliance cannot be placed on this evidence. If he is harboring virulent organisms for a period longer than the incubation period of the disease he is of course immune.

If, however, the organisms found are non-virulent diphtheria bacilli, this finding has little or no significance regarding the immunity of the individual.

Organisms recovered from these remote contact carriers are found to be non-virulent in such a large proportion of cases that they can all be considered non-virulent so far as public health administration is concerned. Meador of Detroit, recently allowed 97 children who were remote contact carriers to return to school and no case of diphtheria developed among the other school children that was traceable to these remote contact carriers. Evidence is therefore accumulating that our great fear of this type of carrier is unfounded. When we are fully convinced of this, we will let this type of carrier go and come without let or hinderance.

To illustrate by an example: After the cases in a certain outbreak of diphtheria were quarantined, cultures were taken of all the school children's throats. Of the 330 children only 7 were found to be harboring diphtheria bacilli: A rather small proportion for the season of the year. Of these 7, two developed the disease within the incubation period and were therefore incubatory carriers. There had been no cases of diphtheria among the other five, therefore none of these were convalescent carriers.

One of these children was however, from a family just released from quarantine for diphtheria and was therefore a direct contact carrier. The other four were remote contact carriers.

The disposition of these cases was as follows: The incubatory carriers were showing early symptoms of diphtheria when the laboratory report was received. They were immediately quarantined and given adequate doses of diphtheria antitoxin. In this particular study there were no convalescent carriers, but if there had been, they should have been placed in the modified quarantine provided for diphtheria carriers.

The direct contact carrier was placed in the modified quarantine until the culture would show non-virulent organisms or until two successive negatives could be obtained, 24 hours apart.

The remote contact carriers were kept under observation for the incubation period and then allowed to return to school without reference to the flora of their throat.

CONCLUSIONS

1. Human beings with and without symptoms of any disease are the greatest factor in the spread of infections.

2. Competent follow-up work on carriers will do much in locating mild missed, or abortive cases which spread much infection.

3. To adequately engage the carrier problem it must be subdivided into its constituent parts, rather than to outline one administrative procedure for all parts of the problem.

4. The investigation of the contacts of incubatory carriers will yield much information necessary to prevent the spread of infection, because these cases are carrying virulent organisms.

5. The convalescent carrier should be subjected to administrative control because of the high proportion of virulent organisms he carries.

6. 1/5 to 1/3 of the people in contact with cases of diphtheria in the home pick up the organisms to which they are exposed. ½ to ¾ of these people are known to be harboring organisms of virulent strain.

7. Remote contact carriers of diphtheria have so little significance in the public health problem that they are included here only for the purpose of completeness. The few of them that are found virulent can be easily explained as having been in contact with mild, missed or abortive cases without their knowledge.

8. More serious study of the outcome of contacts with incubatory carriers is warranted. More control of the convalescent carrier is warranted. More strict isolation of the patient to reduce the number of direct contact carriers is warranted. More leniency with remote contact carriers can be allowed with safety to all concerned.

PREVENTION OF GOITER*

E. P. Sloan, M. D.

BLOOMINGTON, ILLINOIS

For thousands of years goiter has been recognized as a mysterious affliction causing deformity. Only within recent years has it been recognized that goiter is not only the cause of deformity, but often is the cause of cardiovascular changes, changes in emotional or mental states (sometimes even insanity), defective or abnormal development, exophthalmos, tremors, insomnia, weakness, et cetera.

*Read before the Illinois State Medical Society, May 19, 1925, at Quincy, Illinois.

Its distribution is world wide. No country is free from it. Bram of Philadelphia conservatively estimates that over five million people of the United States are suffering from goiter, and that about half of them have no medical attentoin, or if treated at all it is by chiropractors, osteopaths, Christian science, patent medicines. et cetera.

The largest number of deaths in any one general classification in the registration area of the United States has for several years been in that of cardiovascular disease. Eighty per cent. of the cases of cardiovascular disease that we see are directly attributable to goiter. In addition to the deaths so listed, there are also many that are listed under other causes, such as apoplexy, in which goiter may have contributed to the shortening of life by its effects on the cardiovascular system.

Goiter is one of the most insidious diseases which attacks man and animals. The sum total of its ravages throughout all ages and in all lands is still unrealized. It often attacks the most beautiful girls, the best mothers and the most famous athletes. It seems prone to attack those who are otherwise perfect.

This disease was formerly thought to attack only adults, but in recent years it has been recognized in children and even in infants. A disease, degeneration or new growth when situated in other organs, does not have the same course and result as when situated in the thyroid, because the thyroid when diseased or the seat of degeneration, inflammation or new growth develops changes in function that affects seriously almost every structure in the body. Results of thyroid hypo, hyper or dys—function are so varied in kind and severity that the problem becomes one of great magnitude.

The goiter problem of today is not only that of the treatment of tumor in the neck, but includes prevention and early recognition and treatment before cardiovascular changes occur. No great progress can be made in prevention without adequate knowledge of the situation. This can only be obtained by wide surveys correctly and impartially made. The only group of people who can do this much needed work completely is that of the general practitioners. On them must fall the responsibility for adequate information on which to base prevention measures.

On them must fall the responsibility of early diagnosis and early treatment.

Most general practitioners are alive to the importance of the subject but are somewhat confused by the variety of opinions and theories expressed by the men who have given it special attention. This confusion is not lessened by the absence of standard nomenclature and classification. Almost every man giving special attention to goiter has his own nomenclature, classification and definitions. The general practitioner is properly looking to this group of men for guidance. They give him information in many languages. The general practitioner is properly looking to this group of men for actual facts.

Each surgeon, pathologist, internist, radiologist, general practitioner and each governmental agency, such as City Health Departments, State Departments or Health, United States Public Health Service, et cetera, is working independently, using his own nomenclature, his own definitions, his own standards. The general practitioner is asking of this group of men and they are asking each other questions that can only be answered after information from all of them is brought together and reported in the same language.

The reduction of mortality cannot be effected to any great extent by the efforts of the goiter surgeons. The reduction of mortality and invalidism from the effects of goiter must come, in the main, from prevention.

There is need for definite information which can only be supplied by the general practitioner in regard to the prevalence of goiter, and also in regard to the results of efforts of prevention. Before preventive measures can be standardized and the success of such be evaluated, complete information must be obtained. While much of this information must be supplied by the general practitioner, yet some organization that can tabulate, classify and make definite deductions from this information must cooperate and assist. This particular duty, without doubt, falls upon the public health men. The public health men should tabulate, classify and report all such information when obtained. They should assist and cooperate with the general practitioner in making needed surveys and establishing preventive measures.

A survey should be made at least once a year, especially of all children in the public schools. This survey should be conducted by the local profession and the public health men.

Doctor Earle G. Brown, with the assistance of the other members of the profession of Topeka, Kansas, has recently made a goiter survey of the grade schools of Topeka. Most startling and surprising conditions were disclosed. The incidence of positive enlargement of the thyroid gland in all the white girls in the grade schools of Topeka was 44.4%; of the colored girls, 56.7%; of the white boys, 33.2%; and the colored boys, 46.2%.

One such survey is of value in so far as it discloses the actual situation. But one survey is not enough. Periodical surveys should be made. All physicians should report the results of their observations, especially the results of preventive measures so that actual facts may be known. Correct knowledge must be obtained before measures can be instituted that will lessen the incidence of goiter, greatly reduce the number of cardiovascular afflictions, lower the actual death rate and lessen the number of invalids among our people.

In the light of our present knowledge, what can be said with certainty as to measures for the prevention of goiter? It seems to be fairly authenticated that: Deficiencies in the chemical constituents of the body, such as deficiencies of iodin, calcium phosphorus, potassium, iron, sulphur, et cetera, and perhaps vitamin deficiencies, are often followed by endemic goiter; that when the incidence of endemic goiter is high that such deficiencies in the food and water supply will be found to be present.

Second, many of us are thoroughly convinced that systemic and local infections are often followed by goiter.

Third, when endemic or simple colloid goiter and chemical or vitamin deficiencies are present, any systemic or focal infection is likely to activate the goiter and one of the severe forms of goiter result.

Therefore, prevention, in the main, would seem to call for careful attention to general and focal infections and to the adequate supply of iodin, calcium, phosphorus, iron, sulphur, vitamins, et cetera, in the food and water supply.

According to many eminent men in our profession, a deficiency of iodin is one if not the sole cause of endemic or simple goiter. There has been a steadily increasing interest on the

part of public health authorities, physicians and the laity in what has been called the iodin treatment of goiter. Much publicity has been given it. The public have been led to believe that iodin is the treatment par excellence for goiter. But it is not generally clearly understood that *only prophylaxis* is contemplated, treatment being an entirely distinct subject, which had best be intrusted to the practicing physician. While iodin holds a definite place in thyroid therapy, its administration requires study and observation of individual patients as well as caution in application of the remedy, lest untoward results or permanent damage be inflicted. The public should be made to understand that iodin supplied to correct iodin deficiency is a *nutritional procedure* and not medical treatment at all. Calcium deficiency, phosphorus deficiency, iron deficiency, et cetera, are often followed by thyroid disturbances. Adequate amounts in the food and water supply of calcium, phosphorus, iron, vitamins, iodin and many other things are necessary for perfect nutritional balance.

No conclusive evidence has ever been presented that pathological changes in the thyroid gland can be influenced in any way by medical treatment. The symptoms can be altered by symptomatic treatment. The condition of the patient may be improved by correction of nutritional deficiencies, control of infections and by the proper correction of dysfunction in other organs. In Basedow's disease there is rapid metabolism and usually defective assimilation. Deficiency of calcium, phosphorus, potassium, sulphur, iron and iodin rapidly develop. As iodin is assimilated more rapidly than any of the other basic constituents, such as calcium, phosphorous, et cetera, and is perhaps more important to metabolism, correction of the iodin deficiency by administration of any preparation of iodin is followed by prompt symptomatic improvement in the condition of the patient. But when enough iodin has been assimilated to *correct the iodin deficiency, no further benefit can be obtained by its administration.*

A definite enlargement of the thyroid at puberty is of rather common occurrence. It is doubtless true that there is normally some enlargement of the thyroid at puberty. But the majority of definite enlargements of the thyroid at puberty are either endemic goiters or else are due to some local cause, such as a fetal adenoma, hemorrhage, new growths or infection. A fetal adenoma usually manifests itself at about the age of puberty by a large smooth increase in the size of the lobe in which it is situated. Unilateral enlargement at the age of puberty is usually due to this cause. This type of goiter, unless it becomes toxic and the clinical picture of toxic adenoma presents itself, requires no treatment until after the diffuse enlargement has subsided and the adenoma or other tumor is palpable, when it should be removed.

In the early stages of true endemic goiter, correction of all nutritional deficiencies, vitamin as well as chemical (especially iodin), control of existing infections and the administration of thyroid extracts are indicated.

Simple, mild goiter may be present for many years with apparently no other discoverable symptoms than the enlargement of the neck. The majority of them, however, finally became active or toxic. We have come to the belief that nearly all of them are activated by strumitis from some systemic infection like flu, scarlet fever or diphtheria, or from some focal infection, teeth, tonsils, et cetra.

Every patient having influenza, measles, scarlet fever, diphtheria, et cetera, should be watched for signs of strumitis or thyroiditis for weeks and usually months afterwards. Every year we are able to *definitely* trace a larger percentage of our cases of goiter or diseases of the thyroid gland to some systemic or focal infection. The enlargement of the thyroid usually begins within a few weeks after the time of infection. But it is often some time before the enlargement attains sufficient size to seriously impress the patient. This late development of obvious evidence of the presence of thyroid disturbance is the reason that infection as an etiological factor has not received the attention that it deserves.

Tuberculous patients should always be carefully watched for evidence of goiter, both hypothyroidism and hyperthyroidism. A tuberculous patient with a rather small vertical heart and a long narrow aorta shadow should always be *suspected* of having hypothyroidism. The symptoms and toxic effects of tuberculosis and goiter are so nearly alike and they are so often present together that the thyroid disturbance may be overlooked. If the patient can carry both loads, the removal of one will be attended by almost spectacular improvement. Every tubercular patient

whose pulse rate is higher than is consistent with his temperature curve should be suspected of having an active goiter.

Recognition of hypothyoidism is of almost as much importance as the recognition of hyperthyroidism. It changes the emotional states and reduces the efficiency and happiness of those afflicted. It is easier overlooked than hyperthyroidism. Attention is often called to hypothyroidism by the characteristic heart shadow. The fluoroscopic shadow of the heart of the hypothyroid patient usually shows a narrow aorta and a small vertical heart. The shadow of the heart of the patient with hyperthyroidism is usually larger and more transverse with increase in the size of the shadow of the aorta.

As a dependable measure for cure of all kinds of well developed goiters, especially when toxic, we must rely upon operative interference. The improvement in technique has made goiter operation almost a minor operation if done before complications have occurred. There is no other operation performed today in which the results are so uniformly satisfactory as the operation for goiter. But the important thing is prevention. Every patient who is operated upon is necessarily left sub-normal in some way. While hundreds of lives are saved by surgical, medical or x-ray treatment, yet there are thousands of others in our own state who are suffering from the effects of goiter.

CONCLUSIONS

The correction of nutritional deficiencies and control of infections are the basis of prevention and are in large part the medical treatment of goiter. The public should be made to thoroughly understand that the supplying of iodin for the correction of iodin insufficiency is a nutritional procedure and is not medical treatment.

There is great need for standard nomenclature and definite standardization of treatment.

Notwithstanding the great value of nutritional and medical treatment, yet the main reliance in well developed goiter must be in the surgical treatment.

A wide survey of our entire country by each County Society as to prevalence and the result of treatment is the only way that adequate information in regard to goiter can be obtained.

The two great causes of goiter are nutritional deficiencies and infections. Every advanced or well developed goiter or toxic goiter means that nutritional deficiencies or some infection or both have been present and were not promptly controlled.

PERSONAL OBSERVATIONS OF DIABETES MELLITUS SINCE THE ADVENT OF INSULIN*

GEORGE PARKER, Ph. B., M. D., F. A. C. P.
Medical Director, Peoria Life Insurance Company
PEORIA, ILLINOIS

The observations upon which this paper is based date back as far as November 1, 1922, at which time I began the use of insulin (Lilly). From that date to the present time 186 cases of diabetes mellitus have come under treatment. Two cases of so-called renal diabetes presented themselves for insulin treatment because they were unable to become sugar free under strict diet. The number of cases treated fell into age decades as follows: In the first decade of life were 7; in the second, 11; in the third, 12; in the fourth, 10; in the fifth, 26; in the sixth, 43; in the seventh, 59; in the eighth, 15; and in the ninth, one. Of the 186 cases treated 121 were given insulin. All except the very mildest were hospitalized for an average period of two weeks. During their stay in the hospital they were given a course of instruction in diabetes. If the patient was too young or too old, or lacked sufficient education or time to carry on subsequent treatment, some other member of the family was given the training.

The course of instruction consisted of:

1. A study of Joslin's "Diabetic Manual," including explanations of anything therein not fully understood.
2. Daily instruction by the dietitian in:
   - A. Making out diet lists figuring menus exactly as to requirement of carbohydrates, proteins and fats.
   - B. Weighing of foods.
   - C. Preparing special foods, such as breads.
3. Instruction in clinical laboratory as to examination of urine for sugar and diacetic acid.
4. Instruction by physician and nurse:
   - A. In the preparation of the syringe and in the hypodermic administration of insulin.

*Read before Medical Section American Life Convention at Louisville, Ky., June 2-4, 1925.

B. In the hypoglycemic reaction and its treatment.

The response to such a course of instruction was good. The majority of patients were eager to learn. In a few cases patients were too ignorant to acquire any proficiency; in a few others, too old and without relatives to assist them.

Questionnaires recently were sent out to all cases and 123, or two-thirds of the total number of cases observed, were heard from. It is interesting to note just how many, and to what extent, patients were benefited by their two weeks course of instruction in the hospital. Seventy cases were still using insulin; 30 were actually weighing their food; 25 were merely estimating roughly the amount of food taken; 14 were neither weighing nor estimating it; while 6 reported discontinuance of insulin without reappearance of sugar, all 6 of which were over weight and past 40 years of age.

There were 27 deaths, only 5 of which were from coma. Case No. 10, aged 17, discontinued insulin at the suggestion of his local osteopath, who promised him a generous diet and a cure by manipulation. He died at the end of two weeks, no more insulin being used. This boy was below average in mentality, worked on a farm, and had no sympathetic co-operation from a stepmother, being practically forced to weigh and cook his own food.

Case No. 18, aged 16, a county case, son of a poor woodchopper living along the river, ran out of insulin and died in coma without a physician.

Case No. 24, aged 28, a headstrong young woman, persisted in eating sweets and gave up use of insulin, coma and death resulting.

Case No. 32, aged 24, after carefully weighing her food and taking insulin for six months, became discouraged, as reported by her husband, gave up diet and insulin, and died two months later.

Case No. 40, aged 12, an unmanageable child, no co-operation from parents, ate an enormous amount of ripe cherries and died within 24 hours, no insulin being used.

The other deaths were divided among cardiac, vascular, renal, and septic causes, occurring in patients past 50 years of age. One case, aged 25, died of tuberculous peritonitis, and one, aged 8, of a supposed acute pancreatitis. Two cases of thrombophlebitis returned to the hospital with high temperatures and very strong clinical pictures of sepsis. The fatal course of these two cases was uninfluenced by insulin.

The value of insulin was shown in many ways. During hospitalization and subsequent course of cases it was repeatedly demonstrated that it gave specific relief from such distressing symptoms of diabetes, as thirst, polyuria, and weakness. Neuritis, arthritis, and furunculosis were controlled unless other factors were concerned. The use of it was specific for early coma. One case of pregnancy, primipara, aged 24, with true diabetes, was piloted safely through labor and puerperium without decrease of tolerance. The baby was puny and lived only two days. Surgical disease was rendered more safe for operation. Economic salvage was remarkable. Invalids became again useful citizens. Case No. 12, aged 32, height 5 feet 10 inches, weight 92 pounds, is illustrative. He was married, had two children, a renter, unable to work on account of weakness, emaciation extreme, thirst and polyuria troublesome, and practically bedridden—a diabetic since 1918. It was necessary for him to reduce his diet to 800 calories to keep sugar free. Patient left the hospital after 18 days treatment, taking 2,000 calories and 10 units of insulin three times a day. His questionnaire, received after a lapse of two years, shows a gain in weight of 30 pounds. He states, "My general health is good; I have been out every day this winter; have had no colds of any kind; am feeling good; am doing general farm work of all kinds, and can eat enough to hold my weight and do my work." The case which did not return to his former occupation was an exception, there being only three cases in this series.

This economic salvage is of great importance to insurance companies. Many of our policy holders will develop diabetes. Yearly examinations of urine will give us this necessary information. Overweights especially should be advised to send in specimens. Early detection of sugar means longer life. May it not then be advisable for insurance companies to see that diabetic policyholders are instructed properly in the care of their diabetes?

Children were easy to teach, but we found that the long continued strict regime often created in them rebellion; they frequently became hard to manage and often were found to steal and lie as adroitly as a morphin addict. One, a little girl, aged 8, was so successful in eluding the nurses

that she was able to get her fingers frequently into a can of glucose which was kept in a bath room for proctoclysis. Another, a boy, spent all the nickles he could get for candy. Still another built himself a shack and had the other boys donate the food. A padlock on the home kitchen is often necessary.

Our first case, a lad of 10 years, is a good example of just how well children get along when their parents are intelligent and bend every effort to watch details. Having lost a beautiful young daughter with diabetes just prior to the advent of insulin, taught them the importance of strict care. This boy, in November, 1922, weighed 60 pounds, height, four feet five and one-half inches. He now weighs 82 pounds, height, four feet nine inches. He is a picture of health, attends school, plays ball, and belongs to the Boy Scouts. He has been given over 2,000 hypodermics of insulin without infection by his father. During his stay in the hospital he had a severe insulin reaction. Through error he had been given a rather large dose of insulin and there was delay in serving his tray. He was found in coma unable to swallow, sweating profusely with weak, thready pulse. A stomach tube was immediately introduced and glucose given thereby. In five minutes he began to rouse himself and was soon perfectly conscious and asking for food. Hypoglycemia, as a rule, gives little trouble and is easily controlled. Patients soon learn to know a reaction and its method of relief.

It was distinctly noted that all diabetics below 40 years of age, and more especially below 30, live within a very close margin of safety. They are subject at times almost to kaleidoscopic changes in tolerance, and coma is ever around the corner. They must be kept well balanced with diet and insulin at all times. The two following cases illustrate this fact.

Case No. 28, aged 25, a trained nurse, went into severe coma and recovered with insulin. She then took up institutional work and was relieved of the necessity of preparing her diet, although she took her own insulin. As head nurse in charge of a floor, she was on duty daily. She went home on a short vacation, estimated her food instead of weighing it, and returned to the hospital with a severe degree of acidosis.

Case No. 92, aged 23, a farmer's daughter, with a severe case existing since March, 1922, came under observation in January, 1923, at which time her weight was 87 pounds. She was in the hospital four weeks, returned home and did well for a year. At this time she showed sugar, was unable easily to control it and became a little careless, not reporting her difficulty. She suddenly went into coma and was saved only by the vigorous use of insulin. She returned to the hospital and since leaving has lived a most careful life, making daily records of her diet and condition. She has had numerous hypoglycemic reactions and temporary disturbances of tolerance, but has learned how to juggle her diet and insulin dosage until she is an expert. I have her original record sheets as mailed to me during the past year, and wish to submit them to you as a perfect example of an educated insulin patient—Dr. Joslin would call her a "Spartan."

In contrast to these two cases is No. 101, aged 59 years. He stated in his questionnaire that he does not weigh nor estimate his food. His weight is 220 pounds. He takes 5 units of insulin twice a day, does not test his urine, feels fine, and works every day. He does not need inculin but prefers to use it and satisfy the flesh. He is a typical "Sybarite," but it is doubtful whether or not he will have will power enough later on in life to meet the lowered tolerance which is destined to result from his food intemperance.

Human nature tires of dietetic restrictions. Many patients do not have the fortitude to climb on the wagon and stay there. Case No. 39, age 63, came to the hospital on a stretcher. His weight was 135 pounds, blood sugar 340 mg. per 100 c. c. There was a marked acidosis present. He now weighs 160 pounds and has resumed his occupation as a drug salesman. He does not test his urine, takes 10 units of insulin three times a day, and enjoys general good health. Under remarks, he states, "Present dosage of insulin permits me to eat what I desire. I feel good, and as long as insulin keeps me where I am, I do not care to test my urine and keep my mind upside down."

Case No. 120, aged 52, typifies the careless attitude of the patient who feels well. He reports, rough estimation of food, no examination of urine for six months, perfect health, and ability to drive his car 2,000 miles a month. He states he hardly thinks his report will meet with my approval since he has lost the scientific attitude. He closes with the following remark, "In-

sulin has relieved me of the drudgery of diabetes."

No case of any severity below the age of 40 has been able to discontinue the use of insulin without a return of symptoms. Case No. 21, a boy, aged 13, came under observation just two months after he developed diabetes. He was on insulin for six months, at which time his home physician gradually discontinued the use of it. He remained sugar free for one and a half years on a fairly liberal diet. After an attack of influenza sugar reappeared, and it now takes a strict diet with 15 units of insulin three times a day to control it.

An interesting observation in some cases was the change in threshold blood sugars. Case No. 54 always gave a normal fasting blood sugar; but now his fasting blood sugar is often 200 mg., without sugar in the urine. It was necessary to raise his insulin dosage in order to correct same.

A true case of diabetes was discovered in a nephritic, aged 65. This case had never shown sugar in the urine, although albumin and casts had been found. One day she became very drowsy and it was feared a uremia was impending. The urine contained large amounts of diacetic acid and acetone, without sugar. The blood sugar at this time was 300 mg. per 100 c. c. Insulin was given with immediate relief. The patient was placed upon a regular diabetic regime, but in order to meet her caloric requirements, it was necessary to give her 12 units of insulin daily to keep her blood sugar normal. This patient feels perfectly well as long as her blood sugar remains within normal limits, but dietetic indiscretions soon disturb her.

Some nephritics are known to have high blood sugars without sugar in the urine. It is my belief that these cases are true diabetics and should be treated as such. The uncomplicated nephritic shows a normal blood sugar. I believe that arterio-sclerotic kidney cases, who give occasional sugar reactions in the urine, have also arterio-sclerotic changes in the pancreas. The kidney cases that show an occasional sugar reaction with hyperglycemia feel much better on a restricted diet.

The possibility of error in technique introduces a real danger in the interpretation of blood sugars. Fresh blood and competent workers are essential to reliable results in blood sugar estimations. Insurance companies relying upon blood sugar evidence must have unquestionable assurance of the competency of the test.

We, as an insurance company, were recently asked to pass upon an applicant who had been given 100 mg. of glucose, and whose blood sugar four hours after the ingestion of that amount was reported to be 400 mg. per 100 c. c., with no sugar in the urine, no albumin, nor casts and a normal blood pressure. The blood sugar test had been made by some physician unknown to us. It is well to remember that the fasting blood sugar is normally 100 mg., that it should not go above 150 mg. after a meal or glucose test, and that it should return to normal within two hours.

The threshold point of glycuresis in diabetes shows wide variations, being the highest where nephritis co-exists. Roe and Irish have recently reported 100 cases with a range from 80 to 310 mg. The highest threshold in my series was 210 mg. in a case without demonstrable kidney change, and 300 mg. in a case with nephritis.

Medical directors are aware of the fact that fraud can be perpetrated upon the company since the advent of insulin. This fraud, however, could be practiced before the discovery of insulin by strict diet or starvation. Nevertheless, it requires a period of observation by a physician, together with weighed diet and blood sugar estimations, to make the deception complete. We recently had an applicant for insurance who had had three reports for sugar in different years. He insisted upon coming to the home office for tests. We gave him 100 mg. of glucose and found he showed a normal blood sugar curve with negative urines. His conversation so betrayed the fact that he was very well versed in the subject of diabetes that a suspicion was aroused and his impairment record was considered of more importance than the glucose test.

A point which may be of some assistance in determining whether or not a case has been using insulin is the presence of raised boggy areas on the outer aspects of the arms or thighs, or visible stick wounds, or an occasional area of redness. True infection is rare.

Conclusions

1. Insulin has been responsible for a wide dissemination of knowledge concerning diabetes by hundreds of hospitals, clinics and physicians.

2. The importance of diet in diabetes has resulted in thousands of diabetics and physicians

becoming better versed today than ever before in the subject of calories, carbohydrates, proteins, fats and tolerance.

3. The future of the diabetic depends upon his reliability, intelligence, and perseverance in carrying out his treatment.

4. Insulin gives specific relief from all diabetic symptoms, but does not cure.

5. Economic salvage in well treated cases is remarkable.

6. Diabetics under the age of 40 have a harder battle to fight than those above, and live within a closer margin of safety.

7. Blood sugars, properly made, are of great value in diagnosis and treatment.

8. Insulin increases the longevity of the diabetic as shown by fewer deaths occurring in children, and by the postponement of death in the adult.

9. Intensive instruction and treatment given to cardio-vascular cases, to the extent that it is given the diabetic, would greatly improve our mortality savings.

Peoria Life Building.

THE SURGICAL TREATMENT OF PULMONARY SUPPURATION*

RALPH BOERNE BETTMAN, M.D., F.A.C.S.
Consulting Surgeon, Chicago-Winfield Tuberculosis Sanitarium, Associate Attending Surgeon, Michael Reese Hospital, Instructor in Surgery, Northwestern Medical School.
CHICAGO

The subject of my paper today, namely "The Surgical Treatment of Pulmonary Suppuration," was chosen because in the last few years, special progress has been made in the care of these conditions. Formerly a patient afflicted with chronic pulmonary suppuration who did not respond to medical treatment was doomed to a life of invalidism. Even if physically in good condition, the sickening offensive odor of the sputum made him a social outcast.

For a long time, operations have been known for the treatment of lung abscess and bronchiectasis. These operations, however, have been so dangerous that their use was greatly restricted. Within the last few years, improvements in the methods of operation have safeguarded the procedure so that now the risk is greatly diminished. Surgery at present is able to offer a large number of these suffering invalids a definite hope of relief of symptoms; a definite hope that they may be returned to their former economic and social status.

The same steps must occur in the healing of an abscess of the lung as in the healing of abscess elsewhere. Firstly, there must be evacuation of the pus and secondly, obliteration of the cavity. Not until adequate drainage has been established and the cavity obliterated can cure occur. In a large number of cases nature does this herself. Spontaneous rupture into a bronchus takes care of the drainage and subsequent collapse of the cavity and ingrowth of granulation tissue result in the final abatement of the pathological process. Because of this, surgical intervention is not indicated unless it has become evident that medical treatment is of no avail. The continuation of such symptoms as chills, fever, cachexia, intoxication indicate clearly inadequate drainage and the absorption of toxic material; and the persistent sputum proves the presence of unobliterated spaces.

Surgery must attempt to treat the condition by the same methods which cause spontaneous recovery, namely, free drainage of the products of suppuration and collapse of the infected cavity. Surgery in the past has failed because in the first place these underlying principles were not clearly recognized and in the second place, the attempt to carry them out involved dangers which seemingly could not be overcome. The incision through the chest wall into the abscess cavity in order to establish drainage is apt to be followed by two very serious consequences; first, the production of an open pneumothorax and second, the development of an empyema. Either condition is serious. In a case of chronic pulmonary suppuration the pneumothorax is of course less to be feared than in acute conditions. As a rule the collapse of the lung is not complete because of the presence of pleural adhesions. However, the production of an open pneumothorax greatly prolongs the course of the disease and in the entire absence of pleural adhesions may be extremely dangerous. Empyema invariably occurs if the lung abscess is drained through a patent pleural space. Because of the condition of pneumothorax the resistance of the pleura is especially weak and the infection is apt to be extremely malignant. Those cases that do not succumb must face the long and often stormy course common to chronic empyema. If firm adhesions

*Read before the Illinois State Medical Society, Quincy, May 21, 1925.

have been developed between the visceral and parietal pleura and have obliterated the pleural space pneumothorax and empyema will not occur.

Another reason for the inadequacy of former operations was that an incision into the main abscess cavity frequently did not establish the desired drainage, because numerous partitions of the cavity itself, neighboring cavities, bronchiectatic spaces, remained unopened.

Failure to realize that the rigid walls of cavities interfere with the obliteration of the spaces and that radical plastic procedures must be instituted has in many instances accounted for the persistence of the pathological conditions.

The success of present day procedures is due to the fact that methods have been evolved whereby drainage can be established safely and adequately and a collapse or obliteration of suppurative tissue obtained by means of plastic reconstruction.

For the sake of completeness, before elaborating on what in my opinion is the most satisfactory operation, I will mention three other surgical procedures which have been used in the attack on pulmonary suppuration.

The first is bronchoscopic irrigation. The New York school especially claim very good results in the suppurative diseases of the lung by facilitating bronchial drainage by means of irrigation and suction carried out through a bronchoscope.

The second is the establishment of an artificial pneumothorax. The rational of this procedure is that as the lung is collapsed the cavity also collapses, drainage is hastened and eventually obliteration of the cavity brought about. There is no doubt, moreover, that putting the lung at rest is beneficial to the condition. If the abscess is situated deep in the lung near the hilus this method is safe and rational. If the abscess is near the periphery the collapse may be not without danger. The presence of pleural adhesions prevents the lung from collapsing and thus nullifies any good that may be expected from the procedure.

The third is extra pleural thoracoplasty. Following the teachings of Sauerbruch attempt has been made to collapse the cavity in those cases in which artificial pneumothorax is of no avail, by collapsing the chest wall. This operation has at present many enthusiastic followers. Paravertebral sections of the ribs covering the suppurative lung tissues are removed subperiosteally. The chest wall is allowed to sink in and the lung is thus firmly compressed. At present it may be a little early to evaluate the true benefits to be derived from this operation. However, in the case of multiple lung abscess and bronchiectasis the fact that adequate drainage is not established and the suppurative tissues is not removed are definite drawbacks to this method. The operation is a major procedure, deforming, and should not be undertaken too lightly.

The improvements in the technique of radical attack on lung abscess are the following:

1. The artificial production of pleural adhesions.
2. The establishment of adequate drainage and the removal of infected lung tissue.
3. Plastic obliteration of the cavity or remaining spaces.

Artificial production of pleural adhesions is brought about as follows: After the requisite number of ribs have been excised over the suppurative area, preferably under local anesthesia, the peripheral pleura is exposed and carefully studied. If no adhesions are present the underlying visceral pleura and lung will be clearly seen moving with each phase of respiration. In case the surgeon should be in doubt after the study of the open pleura the presence or absence of a patent pleural space will be revealed beyond any peradventure of a doubt by making a small incision through the visceral pleura and seeing whether or not air is sucked in. If the pleural space is patent the surgeon has the choice of several methods for the artificial production of the adhesions.

A large iodoform gauze pack may be inserted into the wound and held firmly pressed against the entire exposed area of parietal pleura by means of bandage or suturing the skin. The presence of this pack irritates the parietal pleura sufficiently to stimulate the formation of firm adhesions. Another method consists in actually stitching the visceral pleura to the parietal pleura. This can be done by means of large, curved needles without opening the parietal pleura. A third method consists in incising the parietal pleura and actually packing the pleural space taking care to let as little air as possible enter around the packing. In ten days or two weeks the pack is removed. It will be found now that the pleural space at the site of the future

drainage has been obliterated. The abscess cavity can therefore be opened without fear of a pneumothorax or an empyema.

The second stage of the operation consists in the establishment of drainage and the removal of infected lung tissue. The abscess cavity is reached by means of a scalpel or cautery or blunt dissector. The cavity is widely opened, partitions are broken down and other cavities or bronchiectatic spaces laid bare by means of the cautery. All this need not be carried out at one time but can be done little by little over a period of several days. Except for the pleura no further anesthetic is necessary as the lung is insensitive to pain. Hemorrhage, primary or secondary, may be severe but because of the low blood pressure in the pulmonary circulation bleeding can be very easily controlled by packing. Drainage should be maintained for a long time. It is far better to drain too long than not long enough. The presence of bronchial fistulae is of less consequence than was formerly supposed. The majority heal spontaneously after adequate drainage has been established. Those that do not heal can be dealt with by a variety of methods, and if the fistulae persist, the establishment of the permanent "lung-lip fistula" of Willie Meyer can be carried out by the formation of an epithelial lined track leading to the fistula.

Plastic procedures to obliterate the abscess cavity are numerous and vary so markedly with each individual case that no definite technique can be outlined. Collapse of the adjacent chest wall, the sliding skin graft, pedicle flap transplant, may all be used to accomplish the obliteration. The obliteration of an abscess cavity offers virtually the same problems as the obliteration of an empyema cavity and most of the methods which have been used for the latter are applicable to the former. In most cases obliteration of the cavity means complete opening, and marsupialization of the cavity.

I have gone into the methods of operation of lung abscess at some length because these methods are applicable not only to abscess but to other suppurative conditions of the lung as well, provided only that the suppuration is confined to a limited area.

Bronchiectasis is a condition which is generally supposed to be beyond the help of surgery because of the fact that the innumerable number of infected spaces cannot readily be drained. Medicine in these cases offers but little. Hygiene, postural drainage, arsenic, help in the sense that the general physical condition of the patient is better preserved and that the symptoms are less obnoxious. But the constant fetor oris, and the slow decline or frequent flare up of acute symptoms, so interfere with the usual routine of daily life that as a rule the patient is a chronic invalid. With the improvements in the technique of x-raying the chest, it has been discovered that bronchiectasis is frequently definitely circumscribed and limited to a comparatively small area of lung tissue. Although the condition is usually bilateral, both lower lungs being affected, frequently the pathological changes are confined almost entirely to one side. Occasionally the condition seems to be limited to one lobe only. Where the disease is entirely or chiefly limited to a single lobe, the removal of that lobe will give relief of symptoms. The operation of lobectomy as formerly practiced was extremely difficult and extremely dangerous. Everett Graham first demonstrated clinically that the diseased lung tissue can be easily and safely removed by means of actual cautery. This operation of cautery lobectomy has revolutionized the treatment of bronchiectasis. The technique of operation of cautery lobectomy is the same as that which I have described. Pleural adhesions are produced and then bit by bit the affected lung is removed with the cautery. The repeated cauterizations can be carried out or at the bedside of the ward without anesthesia, without shock. Thus the entire infected portion of the lung can be removed leaving behind a walled off cavity which may either be allowed to granulate and epithelize spontaneously or which can be closed or reduced in size by plastic procedures. The results of this operation are gratifying, the technique is simple, the operative risk comparatively slight.

CONCLUSION

The profession has as yet not generally accepted the fact that a large group of pulmonary suppurations not relieved by medical treatment are amenable to surgery, nor that the surgical treatment carried out in the rational manner at our disposal is no longer fraught with great danger.

Because of the relief which now can be offered to a group of otherwise hopeless cases, I feel that too much emphasis cannot be laid upon the

principles which have brought this about, and therefore I have the temerity, even at the risk of repetition, to present these brief notes to you.

104 S. Michigan Ave.

PUBLIC HEALTH AND THE MEDICAL PROFESSION*

WILLIAM S. KEISTER, M. D.
DECATUR, ILL.

The subject assigned me is a rather large one to adequately cover in the time allotted on the program, but, as the writer was only requested to prepare this paper a few days ago, he will not burden you with a long treatise on the subject, but merely try to emphasize a few of the most oustanding points. Much has been said in recent years about what belonged in the field of public health activities and what to the practice of curative medicine, and there are those who would have us believe that either branch of the profession is encroaching upon the other, whereas there is really no conflict between the practice of medicine and the prevention of disease when the facts in the case are rightly understood.

Public health in its broadest meaning has to do with all that concerns the health of the public. That would include the cure of disease as well as the prevention of it. It would also include the things we eat and wear, the homes in which we live, in fact under such a broad definition every activity of whatever nature would be included. If a health officer undertook to carry out such a large task, his life would be a source of continual worry to him, and he would do nothing well. Consequently it has been necessary for health departments to select those activities which offer the greatest return in the matter of preventing disease, preserving health, prolonging life and making the world a better, a healthier and a happier place in which to live. Some of these are; protection of the public water supply; sanitary disposal of sewage; food, meat and milk inspections; nuisance control; the quarantine and control of communicable diseases; laboratory service; the prevention of tuberculosis, typhoid, malaria, the intestinal diseases and the venereal diseases; medical inspection of schools; public health nursing; child and maternity hygiene; dental hygiene; mental hygiene; the collection of vital and morbidity statistics; industrial hygiene; life extension work; public health education, etc. A health department that carries out these activities well is performing its function and doing all that can be reasonably expected of it. Yet there are those who would turn it into a scavenger or garbage collection service, or perhaps an agency for inspecting and mending broken water or sewer pipes, or any of the numerous things remotely related to public health. It is much more important to try and save the lives or prevent the suffering of the men, women and children than to be devoting most of the time to cleaning up trash and waste paper or destroying bad odors and cutting weeds, which seem to be the things of paramount importance in the minds of some people.

We frequently hear the term preventive medicine used, and many are inclined to interpret it to mean that the public health agencies of the country are doing their best to prevent the physicians earning a living, in other words driving them out of business. It is a poor term, and nothing is further from the truth. The health officials and the practicing physicians are doing the same thing, only in a different way. Both are doing their best to save life and prevent suffering and no physician with a conscience desires to see his patients suffer or die in order that he may have a full pocket book. The true type of physician, and I am glad to say most of them fall in this class, would rather see his patients remain well than become ill. The true mission of a physician is not merely a dispenser of pills, powders and liquid medicines, but rather an health advisor to keep his patients well if possible, and when they become sick to do all in his power to restore them to health as speedily as possible. It is his function to treat the sick individual. It is the function of the health department to treat the sick community and keep it well.

There is much however, the physician can do to aid the health officer in his work. The prompt reporting of all cases, or suspected cases of communicable diseases would be a great help in controlling epidemics and saving many lives. The accurate and prompt recording of all births and deaths by the men in practice would also be a great aid to the health officer in his work. Advising patients suffering from communicable disease of the importance of remaining in quarantine, using proper measures to sterilize the secre-

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tions and excretions of their bodies and observe the health laws would be the means of avoiding many misunderstandings and greatly aid in protecting the public against disease. The physician can also be of untold benefit to the health department by creating a high regard for such work in the minds of his patients and never criticising the work (no matter how just the criticism is) in the presence of a patient, but reserving his feelings and controlling his temper until he can "have it out' privately with the health officer himself. All true health officers would appreciate this attitude, would be willing to admit their mistakes when they occur and do their best to correct them. *Destructive* criticism, especially to the public, "gets one nowhere," but it must be a "bone-head" indeed who would not appreciate *constructive* criticism at all times.

Likewise, the health officials can, and should, cooperate with the physicians in many ways. They should urge the public to go to them regularly, at least once a year, for a careful, complete physical examination to see what their stock of health is. If this work is sufficiently popularized, it will place the physicians in a better relation with their clientele than ever before, but as the people become educated to see the importance of periodic health examinations, the physicians must train themselves to make better physical examinations so as to be able to make a diagnosis earlier in the course of a disease. Such a plan worked out successfully would be one of the greatest public health measures yet devised. It would be of untold value to those examined and would much more than offset any decrease in income to the physicians from the successful performance of other public health measures which some seem so to fear. The health officer can also give to the physicians a free consultation and diagnostic service in the case of communicable diseases and relieve him of the responsibility for the diagnosis, thus making his relations with the family more pleasant. The health officer can relieve the physician of many embarassments along this line. The health department should also provide free laboratory service to the physicians for all public health specimens. Last, but not least, the health officer should uphold the hands of the physician in the community, strengthen his position with the public and never do anything to injure in any way his good reputation or affect his standing with his patients. When physicians and health officials cooperate in the manner outlined, there can only be one result, namely: harmony, success and mutual good will.

Some would tell us that public health is invading the field of curative medicine because methods of treatment are sometimes resorted to in order to carry out certain measures. One must admit that the dividing line between curative medicine and public health is very uncertain in some cases, as for instance in the administration of sera and vaccines, etc., for the prevention of communicable diseases, the use of iodine treatments in the prevention of goiter and the organization and conduct of certain clinics, etc. In all these doubtful matters the determining factor should always be the welfare of the public rather than the individual. The protection of the life and health of the public comes first. If the physicians of a community can protect more persons against smallpox, for instance, than would be the case if the health department undertook a wholesale campaign of vaccination, then the logical thing would be to turn the whole work over to the physicians; otherwise, the health department should join in on it. It has been recognized in many places that more persons can be protected against disease where these measures are instituted by a well organized health department because it has better facilities for publicity and advertising than would be the case with the individual physicians. The health department undertaking such measures, however, should not interfere with the individual physician doing the same thing for those who desire his services. But the question is frequently raised that when the health department does this work, it deprives the physician of a part of his legitimate income. Perhaps this is true in the beginning to a certain extent, but it must be remembered that if the people would go to the physicians in sufficient numbers to get the protection desired, there would be no need for the health department to do it for them, and the health officers would be delighted to have that much less to do. But as the public do not as a rule seek protection from disease, it is frequently necessary to popularize a method to "put it across," and the health department is in the best position to do this. After it is once popularized, then the people are more inclined to go to their own family physicians for the service, and the

health department can devote most of its energies elsewhere. However, there will always be a class of people who cannot, or will not, pay for such service for themselves or their families, and if they are to receive the benefit, the health department must furnish it to them. The better class of people who can pay will turn to their physicians for the service and instead of the health department depriving the physician of a part of his legitimate income, it has increased it by inducing people to go to him for a service which they did not see the importance of before it was popularized by the health department.

A physician who would advertise his business would be considered unethical, and justly so. Yet a health department must do this in order to "sell" public health to the people. It frequently takes every known art of the professional advertiser or publicity man for the health department to "sell" a certain measure to the public for their own good, and even then it often fails. Literature is distributed and articles written often in a spectacular or sensational manner (but they should always tell the truth for nothing will do more damage than a lie). The public like something startling or sensational. These methods are perfectly legitimate for the health worker, considering the end result, for by this means the health of the public may be protected when otherwise it would not be.

In light of what has been said there seems to be no legitimate reason for physicians and health officers to disagree, for both desire to do what is best for the welfare of the public, and neither desires to encroach upon the work of the other but rather to assist each other. If there is a difference of opinion and they cannot agree at the time, it would be much better to undertake only those things upon which they can agree until a satisfactory arrangement can be made to do the thing about which there is some question. Physicians and health officers received the same training to begin with, their aims are the same, they belong to the same "brood," so why not work in harmony together?

DISCUSSION (ABSTRACT)

Dr. W. C. Blaine, Tuscola, Ill., stated that he was one of the first to recommend health service in this line in Illinois, and wrote one of the first papers, in 1906-1908 under the title of "Obligation of the State to the Growing Child," advocating the full time county health physician and nurses. And he still insists upon that, as a general practitioner rather than as a health man. Physicians are not cooperating with health men as they should, and they frequently put forth the argument that they would be depriving themselves of their income. That is folly, when people are walking the streets needing medical attention today, and he thinks any physician who has this attitude should have his license taken away from him.

Dr. S. E. Munson, Springfield, Ill., thought Dr. Keister had a very good field in Decatur, and a fine class of physicians there to cooperate with him. The difficulty in Springfield with public health work is usually because the physicians do not understand the procedure of the public health work and the public health officers. The public health officer is often new in his work, and fails to cooperate with the physicians, because he has not first placed himself in touch with them and asked their cooperation, which is generally forthcoming if they are approached in the proper way. The day has gone by when the health officer is not well acquainted with his duties. He predicts that the health officer in Springfield is going to be very successful in securing the cooperation of physicians. He goes to society meetings, he tells the men what he wants to do, he asks for suggestions, and he presents these at the medical societies, and the men are ready to assist him. The child welfare movement in Springfield was started by women who did not realize the importance of having physicians interested. They had nurses in control of their work who had studied the work in pediatric clinics. One of the nurses went about and visited babies, and in some cases the mother had scarcely got home from the hospital before the child welfare nurse was at the door. This become obnoxious to the physician who was in charge of the case, and led to considerable dissension. There was one case in which it was said the nurse told the mother that the physician in charge of the case really knew very little about the care of babies, and mentioned the name of another doctor who had charge of the welfare station—said he knew about the care and feeding of babies. Pretty soon there was a war on in the society. Finally by getting three members of the society on the board, harmony was restored. And these women were usually women of mature years of the type with which we are all familiar—particularly women who had never raised babies in their own families. The fact is that child welfare work originated among physicians, and we should be the men who control it.

Dr. J. P. Simpson, Palmer, Ill.: Admitted that in his early days he was occasionally much annoyed by the "grannies," but now he appreciates them more, having done much to educate them.

He thinks the great need, in the case of infectious diseases, is an umpire. When there is any doubt as to the diagnosis of diphtheria, scarlet fever, etc., the community should be given the benefit of the doubt and the family quarantined. Two physicians may disagree on the diagnosis, and both be mistaken. In such case there is need for the community health officer to

pronounce the official kibosh. Otherwise the community will take sides in the controversy, hence the need for an umpire just as at a ball game.

"Some years ago there was a school marm, who returned from her Christmas vacation with a sore throat. She was ill enough that she asked me to make a long drive in the night to see her. I pronounced it diphtheria. She became greatly incensed, and before I could secure the antitoxine and return she tried several physicians and was finally able to find one who would visit her.

"The first one tried, a good sort of scout, refused to go when he learned what was up. (We elected him president of our Society later.) The other fellow was obliging enough to take the case and change the diagnosis. Our only umpire at that time was at Springfield. It may be I should have called him.

"My friends on that party line kept me posted as to the subsequent history of the school marm. In a few days she asked permission to return to her school. The physician objected strongly on the ground that it would injure her health. It would not do to let her return to those children too soon. She later had attacks of syncope and an affection of the voice. My defeat proved a victory, for the event reacted against the other fellow, in that neighborhood.

"An official county physician may not be the wisest man in the world, but he should have the authority to say which side is right."

Dr. Thomas Parran, Jr., Springfield, thinks there are many communities in this state now in which there is an absence of necessary public health measures. The people are not fully informed as to the value of health service. In many communities physicians look upon public health measures as being synonomous with state medicine. Public health authorities are as opposed to state medicine as are the practicing physicians. There should be no reason for a lack of full cooperation between health officers and practicing physicians. The aims of both are identical. Where cooperation does not exist it will be found to be due to: 1. The direction of health work by enthusiastic but misguided lay people; 2. lack of training on the part of health officers; 3. failure of health officers to inform physicians fully as to the health program to be undertaken in a community, or 4. lack of understanding on the part of the physicians of the aims and purposes of the modern public health movement. The science of preventive medicine cannot be applied for the benefit of the people to the fullest extent unless harmony and team-work exist in fact as well as in theory between all branches of the medical profession.

Dr. Wm. Keister, Decautur, Ill. (closing): This splendid discussion has interested me very much. I wish the whole society could hear it. We could get together as health men and men in practice if we could have papers along this same general line presented at joint meetings. I did not mention in my paper about what a health officer should be. There are so many questions that could be brought up, we have only tried to emphasize the more important ones. Many people feel that health officers should be physicians—there are a good many things to be said on both sides. It would seem that medical training is very desirable for a health official to have, yet on the other hand, I have seen some very efficient lay health officers. They can work in harmony with the physicians, who can then work out the details. I feel it is more desirable if we could have qualified M. D.'s As a matter of fact the country is not turning out health officers fast enough. We are going in a very few years to have a demand for health officers that we will be unable to supply. Many doctors are not willing to make the sacrifice financially to give up private practice for public health. I think you will agree that a successful health officer does not make the salary that an equally successful physician does. Another point—a man may do a good piece of work in a community for three or four years, and he may be cast away to hunt out a job somewhere else, owing to a change in party politics, or some other reason. Cooperation with the physician is a big thing. It is the whole thing. I do not believe any public health work can be at all successful until the local physicians get behind it. And it will only be successful in proportion to the amount of cooperation given by the local men. Some doctors do condemn public health work. We do not have much trouble with the best men in the profession as a rule or the men who keep in touch with the advances of scientific medicine. But the fellow who does not attend his medical society, who does not keep in touch with what is taking place or who has not studied the problem—he is the one we are going to have trouble with. Of course we cannot expect men who are busy in treating diseases to be as enthusiastic as we are. But they might pat us on the back occasionally and tell us we are doing a good piece of work. Then the patients help to stir things up too. You know the sort of thing—he asks you if such and such a remedy or procedure is good, and if you say well, I really don't know, he reports to his doctor, "Dr. Blank said this is no good." That does not help to create good feeling. It is difficult to get the right viewpoint. I do not believe many of you men would consider yourselves expert surgeons, competent to take out brain tumors, for instance. Personally I would be scared to death. That is the surgeon's speciality. So is public health. But when it comes down to matters of diagnosis the health officer should consult with the physician. Health officers as a rule, I think, want to work with the physicians. I have seen some fellows who were never intended for public health work. The man who stays in public health has to be a big man. He must be ready to sacrifice himself. He should be of the highest integrity. He should attend medical meetings, and mingle with the doctors as much as he can. I know personally I try to carry out this program as far as I can, and I know that by this means I have put some things over that I could not have done otherwise, and I have lived with, and even slept with some of these people, and they put the thing over for me because they liked me and thought I knew what I was about. We find a few nurses who

are inclined to go into the field and recommend treatment, sometimes when they do not mean to, and sometimes when they do mean to. Most of them steer clear of that. Health officers try to impress upon their nurses never to recommend treatment and never to recommend a certain doctor. A few days ago a doctor came to me and said "Your nurse told one of my patients to go to see another doctor." I did not believe that nurse would do such a thing, and I told him I was going to straighten this matter out. I went to the nurse and told her what had been said. She said, "That woman has been trying to get me to recommend a doctor for the past three weeks, and finally the other day she asked me if Dr. Smith was a good doctor, and I said he was all right." So you see the patient went to her doctor and said that the nurse has recommended Dr. Smith. Quite often the people tell the doctor one thing and tell you something else. These things can be straightened out if we get together in conference and talk things over. The trouble is with most of us that we don't get together, and when people say things they are misinterpreted, and by the time they get around again it is something entirely different. We do not want to practice. Lord knows I wouldn't practice for anything in the world. I don't say that I would not practice under some conditions, but I would rather not practice, but people come to us continually and want us to do so. Some of them say, "Well, I don't need a doctor, but won't you come out and see me," and it frequently is hard not to let some word slip that might make trouble. The health officer should be an umpire, as Dr. Simpson said. He is a better buffer. I was told when I went to my present location that I was the buffer between the public and the medical profession. There are some people who have germophobia. Others think you are imposing a hardship on them. And some of them are certainly difficult to handle. Most of the difficulties, however, can be straightened out if we could have conferences more frequently and work on the basis of friendship. The longer I am in health work the more I believe in friendship—personality. When you get to the point where your enthusiasm is dimmed, which it sometimes is, you are beginning to fail as a health officer. First and foremost the health officer is a physician, just like another physician, and he is just trying to do these things in a natural, common sense way; the practitioners sooner or later will realize that he is not trying to deprive them of their income, but just wants to help.

AN ADJUSTABLE SPLINT FOR FRACTURES OF THE NOSE

SAMUEL SALINGER, M.D., F.A.C.S.
CHICAGO

One of the greatest difficulties in the treatment of nasal fractures lies in the proper retention of the fragments. There have been splints without number that seemed to serve for a time in the majority of cases, but all of which at some time or other failed when the case was of an unusual type. The great trouble has been that none of the splints heretofore devised have provided for a definite fixation of the apparatus.

In a previous communication[1] I pointed out the drawbacks associated with the various types of splints commonly used and called attention to the advantages which my apparatus possesses. These are in brief: First, a definite point of fixation from which the apparatus may be adjusted; second, constant intranasal support of the bony bridge; third, counterpressure against the sides of the nose at any desired point; fourth, the apparatus can be adjusted to any size or shape of nose.

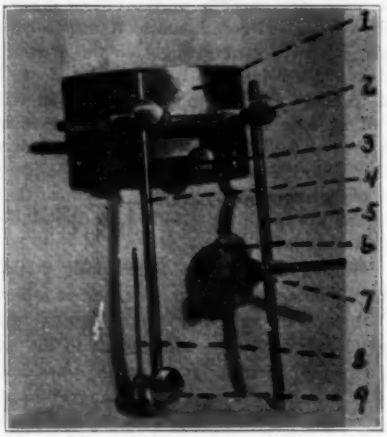

Fig. 1. The assembled splint. Details in text.

In view of the fact that a slight improvement has been made over the original model and also because we deem a thorough understanding of the proper application of the splint necessary for a successful result, we present herewith a series of photographs showing the various steps in the procedure.

Figure I shows the splint assembled. The curved metal plate (1) has a projecting post in the center which supports a horizontal bar about three inches long by three-sixteenths of an inch thick. This plate is to be imbedded in a plaster head cast so that the central post is in the median line of the forehead and the bar as nearly as possible horizontally placed. The proper application of the cast is of the greatest importance and is shown step by step in figures 2 to 8. One item fails to show in the picture, namely, the incorpo-

1. Annals of Oto., Rhin. and Laryng., June, 1924.

ration of a Gigli saw in the plaster bandage which facilitates removal of the cast at the termination of the treatment.

After the cast is thoroughly dried the patient is anesthetized and the fracture reduced. If it is an old fracture it will be necessary to saw the nasal bones free and refracture the entire nose, the exact technic of which is a matter of individual choice and will not be discussed in this essay. The nose having been mobilized and adjusted, the next step will be the application of the rod (4) carrying the intranasal bar (8). A sliding block (2) is first placed on the horizontal rod and brought medially up to the center post of the head plate. The long adjustable rod is then passed through the aperture of the block at the same time that the intranasal bar (8) (which is very thin and flat) enters the nose. They are adjusted by means of the set screws (2) and (9) so that the distal portion of the intranasal bar rests securely under the bridge of the nose. Further support is gained by a flat-headed screw (3) in the head plate which can be adjusted into contact with the long adjustable rod, thus preventing the possibility of it sinking onto the nose. On the opposite side of the apparatus we then apply a plain rod (5) (without intranasal bar) which carries a sliding block (7) by which a pad

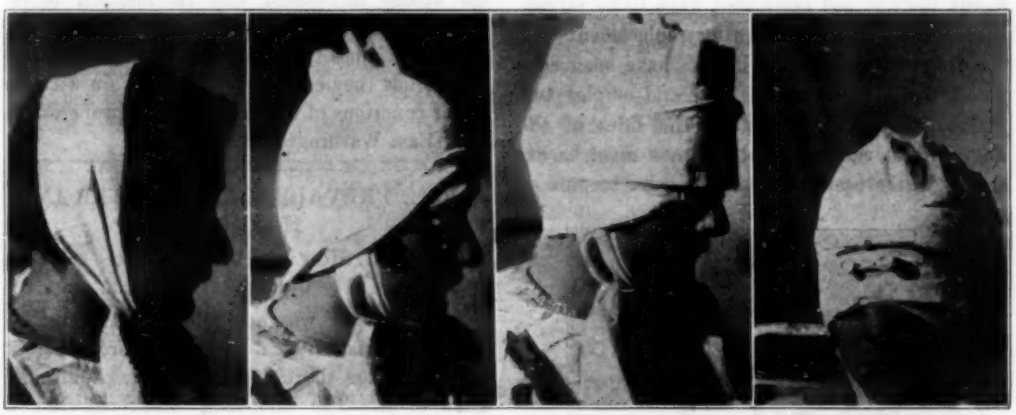

Fig. 2. A single strip of muslin bandage tied loosely under the chin.
Fig. 3. Stockinet pulled over the eyes, ears and below the occiput.
Fig. 4. Two or three turns of cotton lint padding.
Fig. 5. Several layers of plaster bandage incorporating the head plate.

Fig. 6. Muslin bandage released from below the chin pulling the soft plaster well up over the auricles.
Fig. 7. Muslin bandage tied over the vertex. Shows cast fitting snugly from above the brow to below the occiput without pressing on the auricle.
Fig. 8. Front view of completed cast.

(6) may be placed against the side of the nose to prevent side-slipping of the fragments. As a rule we use this pad on the previously convex side of the nose.

This is the application as we have employed it in the majority of cases. In recent fractures there is less tendency to slipping of the fragments than in old cases that have to be refractured, and where we find after replacement that the fragments seem to hold, we have been content to omit the intranasal bar and employ two plain rods carrying pads for the sides of the nose. Great care and watchfulness must be exercised in the use of external pressure because of

Fig. 9. Typical application of splint: one intranasal bar applied on previously concave side; extra nasal pad against previously convex side.

the danger of pressure necrosis. The pads should be released three times daily for a short period and the external tissues lightly massaged. We release the pads entirely over night. The intranasal bar is left in place from three to six days and constitutes the main support of the fracture. After the first few hours it occasions but with very little discomfort and being very small is placed in the angle between the bridge and the septum, causing no interference with breathing and permitting nasal drainage and irrigation.

Another advantage lies in the fact that no external dressings are required and in cases where there is external trauma to the nose the lesions can be treated without interfering with the support of the bones. In such cases we get along with the intranasal support alone.

The objection that the intranasal bar may cause pressure necrosis within the nose, is in our experience of no great importance. The area of contact between the bar and the inner aspect of the bridge is limited and its location is far enough removed from both the respiratory and olfactory tissues that even if necrosis and adhesions follow they can in no way interfere with the major functions of the nasal cavities proper.

25 East Washington Street.

THE PREVALENCE OF GOITER IN ILLINOIS

J. Howard Beard, M. D.
URBANA, ILL.

Simple goiter was noted by writers long before the Christian Era. Hindu records of 2000 B. C. describe thyroid enlargement. Confucius knew of it. The Egyptian, Greek and Roman physicians studied its clinical manifestations and left observations concerning swollen neck. Goiter has been known to exist as an endemic disease in the Alps since the time of Pliny. Marco Polo reported its presence in Central Asia in the thirteenth century.

The home of this disease on the continent of Europe is in Switzerland, but it is also prevalent in Austria, Spain, France, Germany, Russia and the Scandinavian Peninsula. The magnesium limestone district of England has been long noted for the enlargement of the thyroid gland, which is known there as "Derbyshire neck." Asia, Africa and South America have their centers of this disease.

In Canada the malady is by no means infrequent in the Province of Quebec and in the city of Montreal. It is very common in the limestone regions at the end of Lake Ontario in the Province of Ontario. The early explorers of the Great Lakes frequently reported its occurrence among the Indians inhabiting their shores. In this locality its greatest prevalence tends to be co-incident with the hard water of the Niagara limestone. There are definite goiter areas in Oregon, Montana, Nevada and Colorado. In fact, from the Atlantic to the Pacific and from the Great Lakes to the Gulf of Mexico there are sections of the country in which endemic goiter is prevalent.

Goiter is characterized by the enlargement of the thyroid gland, which occupies the lower portion of the neck anterior-laterally. There are two forms of this condition: simple goiter which is primarily a swelling of this gland, and exophthalmic goiter accompanied by the distention of the eyeballs, anemia, overactivity of the heart, tremor, muscle weakness, mental instability, and general organic disturbance.

The thyroid tends to enlarge during adolescence, but the great variation in its incidence in different localities and even in adjacent communities excludes age as the decisive factor. Its wide prevalence in children and in mature individuals in certain districts also discounts the influence of age. Goiter distribution points to an environmental cause which is now known to be a lack of iodine in water, soil, and food.

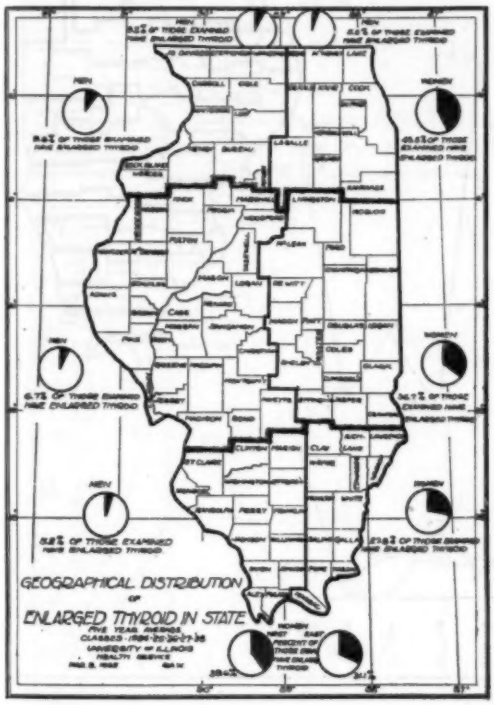

CHART I

Distribution in Illinois

On the basis of the total of 15,154 physical examinations of which 10,829 were men and 4,325 were women high school graduates distributed over Illinois, it was found that the mean average of thyroid enlargement of the women for a five year period was 24.5 per cent.; the men, 4.6 per cent. The attempt is made herewith to indicate the prevalence of endemic goiter in this state. Special considerations are presented in connection with its distribution.

The statistics presented are based upon the work of forty or more well-trained doctors, experienced in the making of physical examinations. While standard forms were used and definite directions were given, no attempt was made to direct special attention to the thyroid gland. The data is therefore more valuable, because it presents the consensus of opinion uninfluenced by over-emphasis or undue concentration upon a particular condition. It does, I believe, underrather than over-estimate the existence of simple thyroid enlargement in this state.

To show its relative prevalence in certain districts of Illinois, the state was divided into three sections by irregular lines through county boundaries from east to west, and into two parts by similar lines from north to south. (See chart I.) Comparison of the incidence of goiter in men and in women in the divisions produced is shown in Table I.

TABLE I

Incidence of Goiter in Certain Portions of the State

	Women %	Men %	Total % of total number
North Section	43.5	9.6	21.2
Middle Seciton	36.7	6.7	13.1
South Section	27.8	5.2	12.4
East Section	31.1	5.5	17.0
West Section	39.6	8.2	15.2

These arbitrary divisions are interesting, because they show that the occurrence of thyroid enlargement, taking men and women together, tends to decrease from north to south and from east to west. While the directional tendency of reduction is definite, its explanation is not obvious. The decrease in prevalence with the increase in distance from the Great Lakes may indicate geological formation influencing iodine availability. In the comparison of goiter incidence in the east and west divisions of the state, the explanation would seem equally logical. It is seen by the table that when men and women are separated in the east and west sections, the decrease runs from west to east. The change is due to the fact that three times as many students come to the University from the east side of the state. The percentage of the total number having thyroid is the more valuable figure in

showing a comparison of the different sections of the state.

In Chart II the state was separated into fifteen sections by tiers of counties, and a curve plotted for men and women on the basis of the percentage of occurrence of thyroid enlargement. The result is seen as an irregular curve, much alike for men and women but not entirely so. It should be noted from Chart II and Table II:

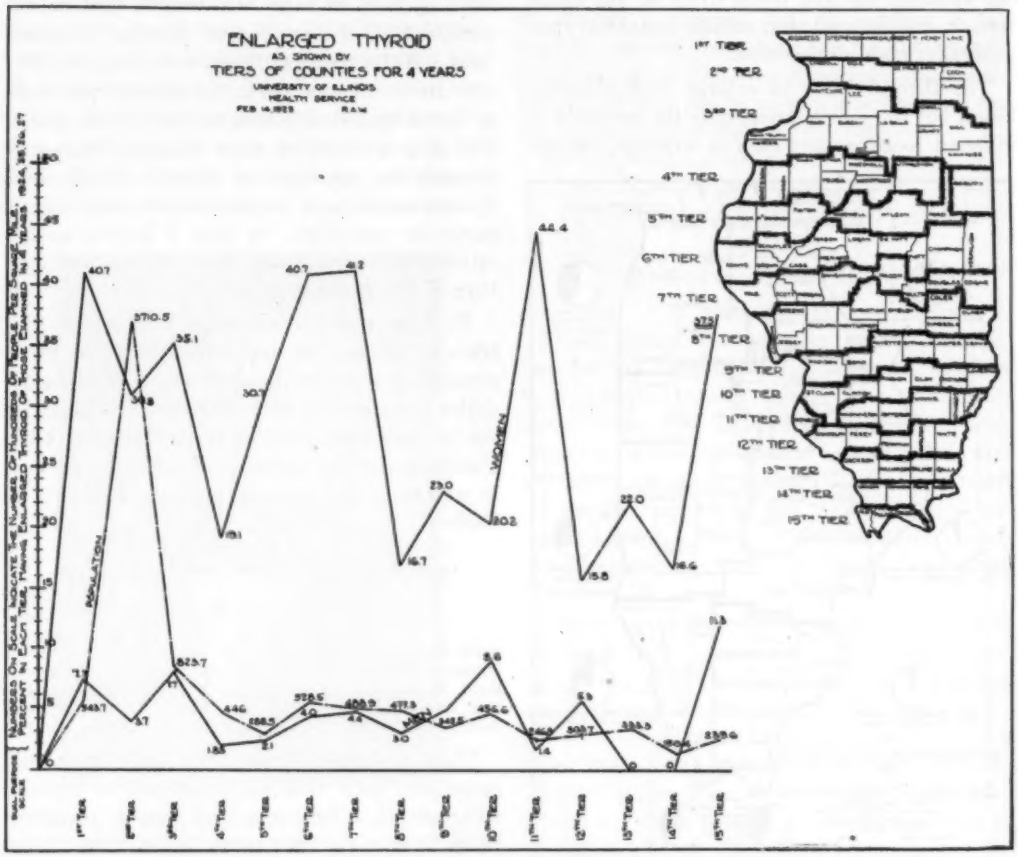

CHART II

a. The usual marked disproportion in prevalence in men and in women.

b. A large part of the two curves shows similar rises and falls as would be expected where the same factors are operative in the case of both men and women.

c. In certain tiers, particularly in the southern part of the state, this similarity between incidence in men and in women disappears. Here is found instances in which a rise in the prevalence in women may be followed by a fall in that in the case of men, or vice versa.

d. The drop in the curve of both men and women in the tier including Cook County may be an expression of the influences of iodine containing food shipped in from the outside.

e. With the exception of the tier including Cook County, the curve of population per square mile shows considerable similarity to the goiter incidence curve in men and women. This is true until the southern part of the state is reached.

f. The variation in the lines of prevalence of goiter in men and women and the population density by the tiers of counties in the southern part of the state is disproportionately influenced by the small number examined and the relative

importance of the presence or absence of enlarged thyroid in a few individuals.

TABLE II

The Occurrence of Goiter by Tiers of Counties as Given in Chart II

Tier	Men %	Women %
1	10.3	52.7
2	9.8	33.3
3	8.9	44.3
4	14.4	25.6
5	4.9	33.9
6	5.2	50.3
7	6.8	44.8
8	4.3	30.0
9	4.4	35.7
10	8.3	22.2
11	3.1	42.3
12	5.0	20.5
13	2.9	31.0
14	2.8	15.6
15	8.8	35.2

EXTENT OF ENLARGEMENT

Charts III and IV show the general degree of thyroid enlargement in both men and women ex-

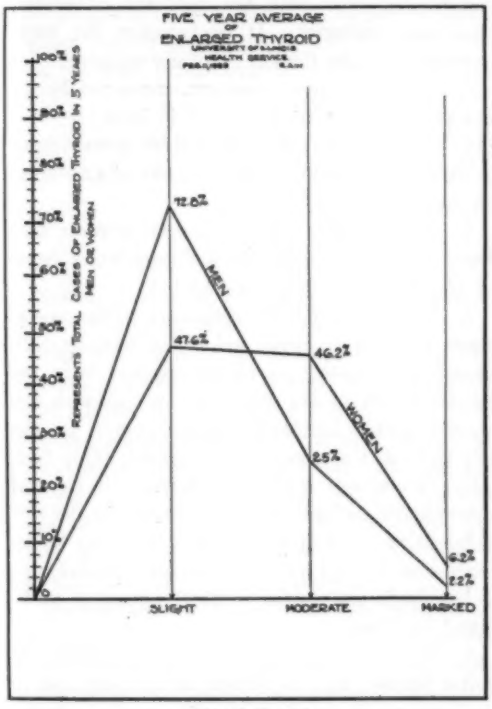

CHART III

amined for a period of five years. They reveal that while nearly three-fourths of the men have only slight enlargement, less than half of the women are included in this group. Only about one-half as many men as women having thyroid enlargement have moderate sized goiters. Approximately three times as many women as men have marked thyroid enlargement. Simple goiter in females is more frequent, more marked, and more persistent than in males. In the men,

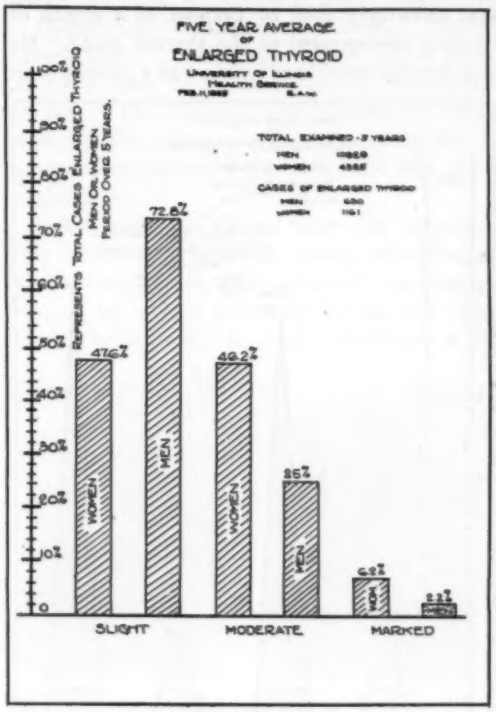

CHART IV

the condition tends to be slight and to disappear rather promptly with the appearance of adolescence and maturity.

From Chart V is seen that there is little difference between the incidence of goiter in the rural and urban portions of the state. The differentiation between city and country is based upon 5,000 population. This arbitrary division is not satisfactory for this purpose, because in many small towns and villages much of the food consumed in them and in their vicinity is brought in from the outside, and the effect of local iodine deficiency is not reflected by the presence of thyroid enlargement. The women, who are more susceptible to iodine deficiency than men, promptly show a smaller percentage of simple goiter where the food is shipped in.

PREVENTION

The early Greek treated goiter by the internal administration of the ashes of burned sea sponges. Among mediaeval physicians Roger of Salerno, who practiced about 1170, was the first

to recommend treatment of the condition by the giving of the burnt residue of seaweeds and sponges. It was not until 1820 that iodine was first knowingly used by Coindet as a means of treating enlargement of the thyroid gland. He also demonstrated that iodine was a substance in

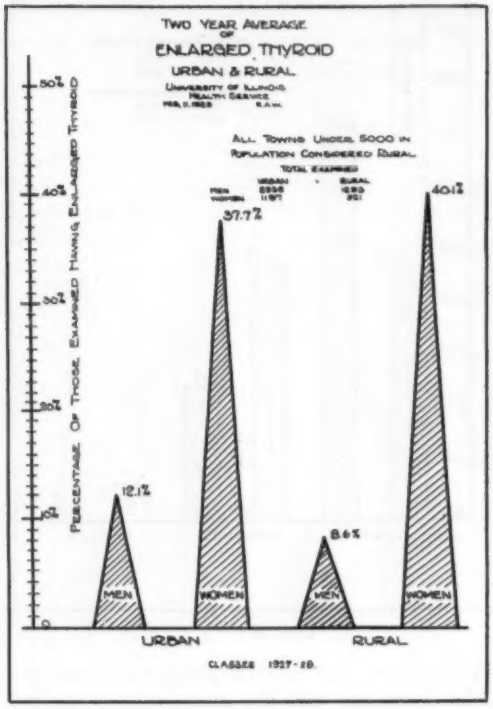

CHART V

seaweed that made it valuable in the treatment of thyroid hypertrophy.

Chatin, a Frenchman, in 1850, was the first to show that small amounts of iodine would prevent endemic goiter and cretinism. Marine, after years of experimentation in using iodine prophylactically in animal experimentation, began its administration to children in the schools of Akron, Ohio. Later, both he and Kimball so clearly demonstrated the value of iodine in the prevention of simple goiter that its use has rapidly spread through the goiter regions of the Great Lakes. In Switzerland, the results with iodine were so extraordinary that its administration as a preventive has been recommended as a public health measure.

For the purpose of goiter prevention, iodine is given in chocolate wafers containing ten milligrams of an organic iodide, as iodized salt (one part of potassium iodide to 5,000 parts of salt), by adding sodium iodide to the water supply and through foods containing iodine. A convenient method in dealing with children is to give them one chocolate wafer or tablet once a week throughout the year. The danger involved in such doses is practically nil. In exophthalmic goiter, iodine should be taken only under the direction of a physician. Even in this disease its value has been shown by Boothby, Plummer, and others.

COMMENTS

1. Simple goiter is very common among boys and girls of high school age in Illinois. Approximately 5 per cent. of the former and 25 per cent. of the latter have some hypertrophy of the thyroid gland.

2. This condition in boys tends to be slight and to disappear with the approach of adolescence and maturity. It is, however, far more frequent in males than is generally supposed.

3. Goiter is more common, more persistent, and more marked in girls than in boys.

4. In Illinois, the incidence of goiter tends to decrease from the north southward and from the east, westward.

5. In this state there seems to be some tendency for goiter prevalence and population density to show coincident rise and fall.

6. There is not much difference in the prevalence of goiter in rural and urban sections. Although the greatest population density is in the northern part of the state, the section with the highest goiter incidence, fewer women in the city than in the country have goiter. This fact, taken in connection with the decrease in thyroid enlargement in both men and women in the tier of counties containing Cook County, may be an expression of food variation, greater accessibility to sea food, and better medical attention to be found in cities.

7. In the comparison of the occurrence of goiter in men and in women in the city and in the country, it is not apparent why, in each instance, the prevalence in men should be the reverse of that in women, who are peculiarly susceptible to iodine deficiency. There may be some dietetic difference not evident. It is not uncommon for diseases due to food inadequacy to show a remarkable tendency in sex selection. For example, in Italy pellagra is about equally prevalent in men and in women; in the United States,

more than twice as frequent in women as in men.

8. The regional distribution of goiter and the direct relation of the thyroid to physical and mental characteristics and its inter-relation with other glands of internal secretion may be a means by which certain districts stamp their local color upon the personality of its inhabitants.

9. The reason for more marked influence of iodine deficiency in women than in men is not clear. The fact that thyroid often shows enlargement coincident with adolescence, menstruation and pregnancy indicates a functional relationship to sex that is still not clearly defined.

10. As administration of amounts of iodine, too small to produce harmful results except in the most unusual cases, will prevent hypertrophy of the thyroid, every girl between eleven and sixteen and every pregnant woman in endemic goiter regions should be given enough iodine in chocolate wafers, as iodized salt, Lugol's solution, sodium iodide, or shipped-in food containing iodine, to protect them against goiter.

PLASTIC INDURATION OF THE PENIS AND OF THE CORPUS CAVERNOSUM WITH A CASE REPORT

WILLIAM A. MARSHALL, M. D.
CHICAGO

Before I present the case, I should like to make a few remarks on the subject in general.

Plastic induration of the penis, also called "fibrous sclerosis of the penis," is a rare condition. There are only about 200 cases reported. Plastic induration may occur almost in any part of the penis, but there is a certain place of predilection, the dorsum of the penis. In most cases described in literature the induration had taken place on the dorsum of the penis between the skin and the corpora cavernosa.

The characteristics are: Slow and gradual development sometimes over a period of several years. Formation of a circumscribed hard mass in the form of a plate, cord or knot. The size of the indurated mass may vary from that of a pea to a walnut. Occasionally there are multiple indurations. The penis when erect may show a deformity. Coitus is either impossible or at least interfered with. In some cases there is a sharp pain, particularly during erection, in other cases there is no pain at all.

The course is a very slow one. The condition may cease spontaneously or be arrested for many years. The progress is always limited. The sexual disability occasionally gives rise to a neuropathic condition, sometimes to grave melancholia.

Histological examination reveals marked fibrous tissue increase, mixed with elastic fibres. In some cases there was formation of cartilage or bone. The tissue is rich in cells and blood vessels. The latter have thickened walls due to an overdevelopment of the adventitia with many nuclei in it.

Occasionally the disease follows an inflammatory conditions. Infection arising either extrinsically from ulcers, boils, abscesses, traumatism, etc., or by way of the blood stream may cause plastic induration. In most cases, however the

Fig. 1—Antero-posterior and lateral x-ray picture of the penis after the injection of bismuth paste, showing the channels of the urinary fistulae.

etiology is unknown, and the induration develops apparently without any cause. Gout, diabetes, arteriosclerosis, leucemia are described as causes. Other writers ascribe the induration to a senile sclerosis of the elastic tissue of the tunica albuginea with compensatory formation of fibrous tissue.

There is a striking relation between plastic induration of the penis and Dupuytren's contracture of the hand as to their histological and etiological character.

The prognosis is dubious as to complete cure.

The treatment may be conservative or operative. The former aims to eliminate the exciting cause (diabetes, syphilis, rheumatism, etc.) and to modify the condition by applying heat, bathing, massage, injection of fibrolysin. Also x-ray treatment was tried. However, all these conservative treatments have not been very successful. The operative treatment consists of com-

plete removal of all fibrous hard masses. It has been successful in some cases, in others a recurrence took place. Sonntag reports 13 cases of complete recovery out of 22, in which operation was performed by different authors.

CASE REPORT:

M. G., the patient is 38 years old. He came to the hospital the first time on June 22 last year. About a month before the first examination a swelling developed on the penis, particularly beneath the prepuce. Gradually the whole penis became greatly swollen, inflamed and extremely painful. Urination was very painful. He stated that he had difficulties in urinating ever since he can remember. The jet of the urine was very thin, and it always took him 5 to 10 minutes to empty the bladder.

At the first examination the distal end of the penis was found to be enlarged almost to the size of an ordinary egg. The external orifice of the urethra was extremely small, and there was some purulent discharge from the urethra showing stapyhlococci in smears. The

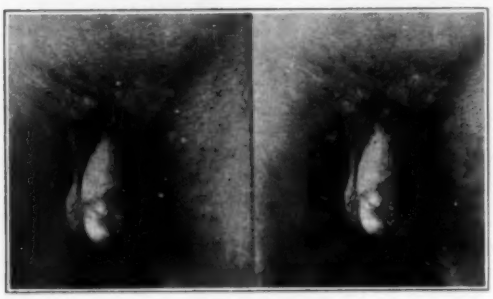

Fig. 2—"Plastic induration" shortly before the operation.

inguinal lymph nodes on both sides were enlarged and tender. The Wassermann reaction was negative and the urine examination showed nothing abnormal. The patient was treated with bathing and dressings. Two days later about half way between the corona and the root of the penis an abscess developed which discharged a considerable amount of pus. This was about the 25th of June.

On July 1, one week after the first examination, the inflammatory edema had subsided to a great extent, but one could feel a hard mass, about an inch long at the distal portion of the penis, corresponding in shape and location to the end of the corpus spongiosum of the urethra and to a lesser extent to the corpora cavernosa. (See Fig. 1.)

On July 12, three weeks after the first examination, all discharge had stopped. The enlarged inguinal lymph nodes had decreased in size. The hard mass at the end of the spongy body was still present. Location, development, consistency and all the other clinical features pointed to the diagnosis "Plastic induration" and the later histological examination proved the correctness of the diagnosis. An x-ray plate taken at that time did not show any bone formation within the indurated masses.

On October 27 the patient was readmitted to the hospital. The condition of the induration was about the same, except that on the inferior surface of the penis in the region of the induration near the end of the urethra there were several minute openings, which proved to be the ends of urinary fistulae, as urine escaped on pressure. The external meatus was nearly closed. Bismuth paste was injected into one of the fistulae, and the x-ray plate showed many lateral channels leading from the urethra to the skin. (See Fig. 1.)

The etiology of the plastic induration was clear. The stricture of the urethra had given rise to the formation of the urinary fistulae and to an infection, which had caused the plastic induration.

Dr. Carl Beck operated on the patient several times, resected and removed the anterior part of the urethra and all the indurated masses, and restored normal conditions afterwards again by means of a urethral plastic.

The histological examination of the removed masses by Dr. Pilot showed the following condition:

"Section through fibrous mass reveals connective tissue with scattered areas of round cell infiltration, often perivascular. The vessels show moderate endarteritis. The cells are predominantly plasma cells and lymphocytes. Skin presents similar processes with deposits of brown pigment under epidermis."

SUMMARY

Plastic induration of the penis or of the corpora cavernosa is a rare condition, characterized by the formation of hard fibrous masses within the substance of the penis, mostly at the dorsum.

The prognosis is not very good.

The treatment is either

(a) conservative: Hot applications, massage, injection of fibrolysin, electricity, x-ray, etc.

(b) operative: Complete removal of the fibrous indurated masses.

Report of a case: A patient with plastic induration of the corpus spongiosum and the corpora cavernosa, following an inflammatory process was treated with conservative means during several weeks without improvement. Ultimately operative treatment effected a cure.

2551 N. Clark Street.

North Chicago Hospital.

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HEAD INJURIES*

H. R. KENNY, M.D.
CHICAGO

It will be generally conceded, I believe, that the study of head injuries with which we will occupy ourselves this evening is one which is liable to be neglected in general hospital practice.

Patients are so numerous, their claims on the staff so varied and pressing that comparatively little time is left for the detailed and exacting study of head cases. And also, I think, it has its explanation in this further fact, that the study of brain pathology is, and necessarily must be, tedious and time consuming and up to the present far from encouraging in ultimate results. And yet, you will find that in any large general practice, brain diseases make up a not inconsiderable part of our clientele.

I propose this evening that we study in a general way, briefly and practically, the nature and treatment of some of those injuries which can be legitimately termed surgical. I am of the opinion that you will agree with me when I say that the prevalent attitude of comparative hopelessness in the treatment of brain injuries ought not to deter us from the study of them. The clinical symptoms and signs are so varied and frequently so confusing in these patients that they constitute a most fascinating field.

While it is undoubtedly true that brain tissue is the most delicate and highly organized structure of the body, it cannot be too strongly emphasized that injuries to it result in reactions entirely comparable to those which occur in other tissues. It is subject to the same reparative reactions when injured and the adaptive phenomena generally termed inflammation is no less marked in these tissues than in others and sound principles of treatment apply here as elsewhere. The difficulty lies in our inability (owing to the extraordinary safeguards with which nature has surrounded this most sensitive of all tissues) to arrive at a correct diagnosis and bring treatment to bear on the injured structures without first removing in part, at least, the protective coverings themselves.

Early, complete and exact diagnosis is nowhere more important than in lesions of the brain, in the first place to prevent a fatal issue and secondly to obviate complications that so

*Read at Staff Meeting of John B. Murphy Hospital, April 16, 1925.

often follow, chief of which are paralyses and epilepsy. The difficulties in the way of attainment of definite information are due, as just intimated, in great measure to the anatomical barriers with which nature has surrounded these highly organized, delicate and all important structures. The protective coverings of the brain consist of the vascular scalp, the boney skull and the meningeal sheaths.

Apart, however, from difficulties of an anatomical or structural nature the obstructions with which the road to a definite diagnosis is encumbered are still further complicated by the disability of the patient, who is frequently unconscious or restless, or both, to assist us. Notwithstanding these almost insuperable difficulties, in no other class of case is the urgency for early, complete and exact diagnosis and treatment more pressing, both from the view point of immediate as well as remote results. I can unhesitatingly assure you that in none of the injuries which happen to come under our care is preparedness and a definite plan of procedure more essential to our patient's welfare and our own peace of mind, than in the cases under consideration, although heretofore there may have been some excuse for the "Laissez-faire" attitude more or less generally adopted by the profession in these cases.

Today, thanks to a progressive increase in knowledge of the underlying principles, physiological and pathological, to accurate, easily applied diagnostic methods, technique and instrumentarium, no excuse exists for allowing these patients to develop definite paralyses, a lowered pulse rate, Cheyne-Stokes respiration and pulse and that appalling group of extreme intracranial pressure signs, when to operate only hastens the end. Nor should it be necessary to waste valuable time and so lessen the patient's chances by calling in ophthalmologists, neurologists, otologists, rhinogolists and the rest. Nothing is so likely to check surgical progress on the one hand or ruin the patient's chances on the other as this division of responsibility.

The problems we have to consider in the case of head injury are the following: 1. What is the nature and extent of the injury? 2. What treatment should be instituted? It is obvious that in injury to a long bone the damage to the bone is of prime importance. In an injury to the spine the trauma to the bone as well as to the contained cord divides our interest. In an injury to the skull the all-important question is what has happened to the brain.

When a patient who has just received a head injury comes under our care it is of prime importance rapidly to determine 1. the presence or absence of pallor, 2. cold clammy skin, 3. rapid, running pulse, 4. low blood pressure and 5. particularly note if the pupils are dilated. In other words, the presence or absence of shock is recognized. If present, the immediate treatment is that of shock.

Careful, frequent observation of the blood pressure curve will tell us when we may safely proceed to the examination and treatment of local conditions. When the patient's condition has improved satisfactorily from the effects of shock, a laceration, if present, is rendered surgically clean by excision of all soiled edges and is explored to determine the possible presence of an underlying fracture. Fissured fractures in themselves call for no treatment. Depressed fractures, if found to be present, should be immediately elevated, this to prevent sequels such as epilepsy, headaches and mental derangements which are so frequently found to follow this type of injury if left untreated. If the patient has recovered from the shock but has not regained consciousness and the pulse rate and blood pressure show progressive signs of increase, the deep and tendon reflexes are examined, the intraspinal pressure is taken, normal salt solution is given intravenously if it has not already been exhibited. In brief, in such boundary line cases the determining factor in selection of those suitable for surgical treatment does not depend altogether upon the presence of signs of intracranial pressure but upon whether those signs are increasing or subsiding; the slow pulse, is it getting slower; the increased pulse pressure, is it getting more pronounced; the stupor, is it getting more profound; the rising blood pressure, is it continuing to rise? If so it is obvious that unless immediate steps are taken to lessen the increasing pressure, irreparable damage from medullary enema will result and surgical efforts only hasten the inevitable end.

The advanced clinical picture of acute cerebral compression manifested by coma, slow pulse, high blood pressure, Cheyne-Stokes respiration and the associated findings represent the extreme limit of the ability of the patient's tissues to

compensate for the increasing pressure and, if within our observation, should not be permitted to occur. Let me warn you that patients who remain unconscious with a low blood pressure, rapid pulse and who from a subnormal temperature climb rapidly to a high one, are of uniformly fatal outcome. The patients die from shock and surgical efforts offer little aid because intracranial pressure is not increased. It is in the large number of patients who do not have this great degree of brain injury and yet have serious damage that we should constantly watch for developments, above all for symptoms of increasing intracranial pressure.

You probably have noticed that I have not mentioned the neurologic aspect of these cases. Why? Because it seems to me that as far as the surgeon is concerned only the gross neurologic findings such as hemiplegia, present or increasing, will rapidly be recognized and will affect his judgment. Nevertheless, the value of neurologic examination is not to be underestimated. The physiologic responses to pressure, however, far outweigh it in immediate practical importance. Granted that such is the case, how are we to recognize the proper time for operative intervention?

Naturally many brain injuries are fatal from the beginning, where fatal damage to the skull contents occurred at the very onset of violence, but of the other cases, those which are amenable to treatment, there has, in late years, been developed a technique of management which is simple enough for any painstaking surgeon to understand and, I am convinced, will lead to a happly issue in a far greater percentage of cases than the text-books would lead us to believe.

It is no longer necessary to await the development of focal paralytic symptoms or the complete obliteration of the optic disks by edema before attempting operative interference. Today we know that few cases live to develop focal symptoms and if we attempt operation in such cases our operative mortality will equal the 68% of the past or greater. We now have an instrument, the spinal mercurial manometer, with which we can measure the intracranial pressure in health, disease and injury and through its use we are enabled to apply such treatment to these cases as will serve to prevent, in many patients, the condition of medullary compression, medullary edema and collapse. By means of it, and the ophthalmoscope, we have discovered that there are certain definite changes in the optic disks which go hand in hand with increased intracranial pressure and which occur earlier than the choked disk condition. The aforementioned observations serve to confirm each other.

A thorough knowledge of the cerebrospinal fluid is most important in the management of these cases. Its existence was first discovered by Herophilous 300 years B. C. It intrigues the historical imagination to find that Corning, an American, first removed it from the spinal canal by lumbar puncture in 1885, though most of our present knowledge we owe to the work of Quincke, who perfected the technique in 1891 and began to apply its use to the study and treatment of diseases.

The amount of this cerebrospinal fluid varies in quantity from 60 to 160 cc. Its normal pressure is 5 to 9 mm in adults and 4 to 8 in children. Brain tumors and injuries frequently increase its secretion, while thyroid extract decreases it. Any disturbance of its secretion or its elimination interferes with the physiological action of the brain. If spinal puncture shows an intracranial pressure above normal, about 16 or greater, observation of the eye grounds at the same time will reveal a blurring of the nasal sides of the disks or perhaps of both the nasal and temporal sides. At this time also the superficial reflexes are exaggerated and there may be present a Babinski, Chaddock, Hoffman, Oppenhein or Koenig reflex. If nothing be done and the patient is allowed to continue in this condition he may enter into the very grave state of medullary compression with a pulse of 50, sometimes as low as 40, respiration 12, choked disks, systolic blood pressure 200, complete abolition of most of the reflexes, deep stupor with beginning Cheyne-Stokes. Intraspinal here will register about 20, sometimes as high as 40. From this condition he may emerge without operation but will probably develop the later condition known as wet brain and become a mental and physical derelict. If, however, he develops the further state of medullary edema and collapse manifested by a sudden rise of pulse to about 120 of more, a definite Cheyne-Stokes respiration, appearances of papilledema of varying degree of temperature disturbances, death is the inevitable result. No operation or other treatment would save him now. Let me repeat that observation of the eye

ground with the ophthalmoscope, careful notation of the rate of pulse, respiration and systolic blood pressure, together with investigation of the reflexes and an actual mensuration of the intracranial pressure, will enable us to treat these cases with an absolute degree of certainty as to what pathological changes are going on within the head. Success in bringing surgical aid to cases of brain injury will depend on an accurate corelation of these readily observable, general conditions, and their progressive changes with those conditions originating within the skull.

When the patient is in shock, the intracranial pressure is subnormal and no operation is indicated. When the patient recovers from the effects of shock, if he does so, and a brain injury is present, his pulse rate becomes progressively slower, and as the pressure within the skull increases, the respiratory rate decreases and the blood pressure rises to 160 or more. If the cause of the intracranial increase of pressure is localized as in depressed fractures or hemorrhage this additional fact will oftentimes reveal itself in some demonstrable loss of function, in the part or parts supplied. And so it is, that we are enabled to keep close watch on the symptoms and their orderly development and to visualize the contemporaneous intracranial conditions, and a knowledge of the symptoms which indicate that the unaided tissue have reached their limit in the reparative struggle will enable us to bring aid in an intelligent and purposeful manner.

Operative interference consists of subtemporal decompression on the right side in right handed patients when no focal symptoms exist and vice versa in left handed patients to avoid the motor speech area. The depressed fracture can be elevated after decompression has been done or later at a subsequent operation. It should never be attempted before the decompression if the intracranial pressure is as high as 16 because the danger of the increased pressure pushing the damaged meninges through that area of the skull and thus producing laceration of the cortex.

THE DECOMPRESSION OPERATION

The subtemporal is best.

1. It exposes the middle meningeal artery which is the vessel most frequently injured.
2. It is situated over a silent area of the brain.
3. We have here a good pad of muscle and fascia to serve as a protection when sutured over the bone deficiency.
4. It drains the middle cistern of the skull at its lowest point where most of the pathology occurs.

In chronic cases where the injury has occurred years before or where depressed fractures of the vault have not been elevated, or where the case had been dismissed having cleared up under palliative treatment and where symptoms referable to disturbed circulation of the cerebrospinal fluid arise; in such cases if we can demonstrate in them the presence of persistent increased intracranial pressure as recorded by the spinal mercurial manometer and eye ground changes with constant headache, changes of personality or epilepsy, we should unhesitatingly advise them to have a decompression operation done. The results may be striking even when years have elapsed from the time of injury.

Do not lose sight of the fact that the beneficent therapeutic effects of decompression are not confined to adults alone. It is well known that intrancranial hemorrhages occur in the new born infant or may occur before, during or after labor. The symptoms of pressure here are generally delayed but if the hemorrhage is large the symptoms are stupor, failure to nurse, or to cry lustily, or constant crying, bulging fontanelle, accompanied by spasticity of the muscles or reflex disturbances, or even convulsions. Bloody cerebrospinal fluid is present if the puncture is done early, but will be clear if the blood has been allowed time to clot. This condition is often associated with premature labor and when the cord is wrapped around the neck.

Doctor Green of Boston first found blood present in the cerebrospinal fluid obtained by lumbar puncture in cases of convulsions occurring in the new born, and it should be a source of patriotic satisfaction to us to know that drainage of the cerebrospinal fluid for the purpose of relieving intracranial pressure in infants, which is the recognized treatment of today, was first suggested by Dr. Sidbury of Wilmington, N. C.

Owing to the fact that the dura is elastic and the bones of the skull are incompletely ossified, the child's brain can withstand increased intracranil pressure much better than adults and convulsive symptoms may not appear for three months or even a year. Such cases have been classed as spastic idiots. If one should, in these

cases, find definite increased pressure on lumbar puncture these should be operative cases because it is well known that a decompression operation always improves spasticity and convulsions if only an increased pressure is present. It is, of course, obvious that early recognition and early operation will give the most satisfactory results. Late cases with a pressure which does not register above 12 are not good cases as far as prognosis is concerned. The lesson from all this may be summarized thus: Do not neglect a lumbar puncture and measurement of pressure in spastic idiots, and verify with the ophthalmoscope.

SUMMARY

All injuries of the head should be regarded primarily as injuries of the brain accompanied by more or less damage to the skull. In the first stage the actual wound when present with its lacerated scalp naturally more directly arrests the attention. Only the most gross and obvious evidences of cerebral injury such as loss of consciousness and paralysis may be noted. The chief problems at this stage are those of tiding the patient over the period of shock and of getting the wound to heal speedily and, if possible, aseptically. Later if an aseptic healing fails, the wound is still in the foreground of the clinical picture and the prevention and treatment of septic complications constitute the surgeon's primary task.

Very few cases of edema demand operation and then only when there is a constant rise of blood pressure.

Operation upon extensive laceration of the brain offers little hope. It should be done only when edema is so extreme as to demand relief of pressure.

All cases of hemorrhage should be operated on at once.

All cases with definite focal symptoms should be operated on at once, for they generally represent hemorrhage.

Dilated and fixed pupils are almost always a positive indication for operation.

A single observation of high blood pressure is of little value. Continued high blood pressure with a slow pulse is a strong indication for operation.

High pressure of the spinal fluid as shown by the manometer reading is of greater value than high blood pressure as an indication for operation.

And in conclusion let me add, when the brain has been injured the first duty of the surgeon is to satisfy himself that the local pathological condition caused by the injury is rendered as favorable for repair and as unfavorable for complications as he can make it. Having secured this, his second duty is to give the brain every possible chance of recovering its normal function as soon and as much of that function as is possible. There can be little doubt that complete mental and physical rest, for a prolonged period is the first necessity in order to attain the end in view, and we hold the opinion that in all head injuries where there is evidence that the brain is involved either by bruising, or laceration, at least a month's complete rest in bed and often a much longer time should be prescribed. This measure is so much the more necessary because the patient is often restless and anxious to get up long before he is really fit to do so. It should be the general rule, therefore, not only to enforce the rest but to administer a daily dose of 20 to 30 grains of bromide to the patient for some weeks or even months after his injury. Experience teaches us that this method of treatment goes far to prevent the development of the troublesome sequelae of head injuries in the shape of headache, insomnia, giddiness, depression, exhaustion, irritation and other neurasthenic symptoms and probably exercises a favorable prophylactic influence against traumatic epilepsy.

SYSTEMIC ASPECTS OF ACHYLIA GASTRICA*

LE ROY CRUMMER, M.D.
Professor of Medicine, University of Nebraska College of Medicine.
OMAHA, NEB.

For some reason, difficult to determine, gastric lavage for diagnostic purposes is no longer utilized to an extent comparable to the information obtained. There are several causes for the neglect of this procedure. The most important, perhaps, are the fancied discomfort to the patient, and the supposed technical difficulties of the procedure. Of almost equal importance is the introduction of pseudo scientific

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refinement suggested with a view of attaching undue importance to variation in the acid percentage in comparative diagnosis of different conditions or in consideration of an ideal curve in the individual case.

The popularity of x-ray examination, both with the profession and the laity, has also had the result of almost completely superseding the older methods of Kussmall. In a consultant's practice, at least twenty patients give a history of x-ray survey to one who has had diagnostic study of gastric contents. But diagnostic gastric lavage is difficult neither for the patient nor the physician when good technic is used. With the patient recumbent, the tube is most easily introduced, extraction is without trouble, and in addition, inflation demonstrates the size and position of the stomach as well as with the x-ray, and also offers opportunity to estimate the thickness of the stomach wall.

Attempts to formulate an ideal curve of acid secretion are doomed to failure. So many different causes, some physical, but more in that peculiar pyschic realm dominated by the emotions, influence gastric secretions, that there is just one point of importance in gastric analysis —is free hydrocloric acid present? If acid is present in examination after the Boas meal, the percentage is of very minor importance. If acid is absent, the macroscopic appearance of the pasty content tells at once complete achylia. Only with liquid gastric content is it necessary to use repeated examination, or the Rehfus, and then this test need be continued only till the acid is found.

X-ray examination has its place in the diagnosis of gastric disease, but it should supplement and not replace gastric chemistry. From the hands of the x-ray expert, reports must be accorded due weight, but they do not make the diagnosis—so a negative report from the roentgenological examination is not the finality of diagnosis, and the so frequent report of dilated or fallen stomach, much as it satisfies the patient, is not a diagnosis.

Even when the history points to ulcer, lavage should precede x-ray examination. No matter how well trained the clinician, he cannot differentiate from the patient's description in all cases between the distress caused by too much or too little acid. Proof should be sought by lavage in those cases which have the classic symptoms of achylia, red tongue, gas belching, regurgitation, vomiting and diarrhea. But only a small proportion of cases without acid present these symptoms, and, consequently, unless lavage is utilized as a routine procedure, many cases of true or symptomatic achlorhydria are overlooked.

The literature of the last few years has demonstrated the acceptance of the postulate that absence of acid must be demonstrated in pernicious anemia and by equally cogent reasoning, spinal cord changes with negative Wassermann and absence of acid justify the diagnosis and prognosis of pernicious anemia regardless of typical blood findings.

If the old idea of temperaments were retained in medicine, a pernicious anemia temperament or type might be described. We are all familiar with the picture—a moderately fat individual, prematurely grey, with a little tendency to baldness, frequently with leukoderma, inclined to early digestive troubles, with red tongue and gingivitis. Such is the patient whose appearance at once suggests a blood examination. In the history, there is usually a complaint of parasthesia. Taken as a whole, these manifestations indicate study of the gastric function. Taken each separately, as an indication for lavage, no matter in what condition observed, the results of gastric analysis are surprising.

With leukoderma is, of course, included lekoplakia, premature grey hair and canities. It is but a short step, and quite worth while, to include other disturbances of pigmentation. Chloasma and undue tanning, the bronzing of Addison's disease, should be studied from this angle. In occasional reports on pellagra, achylia is mentioned, and the pigmentation in this condition may have the same significance. Certain changes in mucous membrane, aside from the atrophied tongue, must all raise the question of achylia. Of interest to the gynecologist is carunculasis; achlorhydria is a very common concomitant of this distressing condition.

In leukoplakia, there is a specific element in about half the cases, but in the half not specific, a large proportion will be found to be associated with achlorhydria. In true leukoderma, the absolute symmetry indicates nerve influence, and the frequent association with determined spinal cord lesions of pernicious anemia, in the form of paresthesia, seems to indicate, at least, a pos-

sible common factor. About 85 percent of leukodermas show absence of acid, and so leukoderma as an indicative sign demands gastric analysis, and such cases as have no acid should be considered potential pernicious anemia.

Premature grey hair and canities are similar signs, but have their additional characteristics. Such conditions are more markedly hereditary, and in just those occasional reported instances of familial pernicious anemias, it will be found that premature grey hair is part of the clinical picture. Other causes are, undoubtedly, present in premature greyness, but a sufficient proportion present achylia to make gastric lavage a part of the examination no matter what symptoms are found.

The bright red tongue of symptom producing achylia is well known and a similar condition of atrophy of the buccal mucous membrane is found in pernicious anemia. Closely related to this typical red tongue are other conditions of similar import. The so-called geographical tongue denuded in places of all mucous membrane is apt to be associated with achlorhydria. The broad flabby tongue showing indentation of the teeth has this same significance. Canker sores in many cases are dependent on deficient acid secretion, either constant or intermittent heterochlorhydria.

Inspection of the tongue is almost a lost art, but tradition remains persistent in the patient's fear of a coated tongue. Examination of gastric contents, when any of the above deviations from normal appear in the tongue, brings to light many interesting associations.

The beef red tongue is characteristic in diabetic coma. Test of the vomitus in such cases always shows absence of acid. And in those cases which recover from coma, a gastric analysis shows persistent, though perhaps, not constant achlorhydria. Routine stomach examination in diabetes reveals in almost every case lack of acid. This applies particularly to the severe juvenile type of diabetes, but even the fat diabetics of the fourth decade carry a digestive burden which failure of acid formation may increase.

Goiters of various types present the same anomalies of the tongue. In hyperthyroidism, the tremor and the color are often found. Particularly in the terminal stages, with fibrillation, the tongue is identical with the tongue of diabetic coma. In the early stages of hyperthyroidism, the stomach condition is one of heterochlorhydria, the periods of exacerbation coinciding with those of absence of acids. With toxic adenoma, the advent of fibrillation may be expected. Gastric analysis at such a time shows absence of acid and in some cases of adenoma, there is persistent achylia. Myxedema too, even in the milder types, shows achylia, and in that perplexing type of mild myxedema, with fatigue as the only symptom and a peach blow complexion, as figured by Bramwell, the most significant sign, the accompanying achylia, at once suggests pernicious anemia, but when acid and thyroid substance are administered the astonishing results immediately determine the proper diagnosis.

Not only in the fibrillation of toxic adenoma is achylia often found, but when this type of cardiac irregularity is due to any of the other causes, lack of acid may be demonstrated in about 50 per cent of cases. The general appearance of such patients suggests the type previously described as characteristic of those with achlorhydria—and even if a stomach examination seems contra-indicated on account of the heart condition, a therapeutic test with acid can do no harm. Surprising results are sometimes brought about by combining acid with either the indicated digitalis or quinidine. Fibrillation associated with other conditions, notably mitral stenosis, may have a concomitant achylia, and in fact, heart failure itself may be a cause of achylia, or in a measure dependent on pre-existing lack of acid.

Colon bacillus infection of the genitourinary tract is yet another condition in which achlorhydria is a factor—so much so that each case in which there is colon bacillus infection outside the gastrointestinal tract, the routine examination should include the chemistry of the stomach. In gingivitis, especially when there is ulceration at the base of the lower central incisors so characteristic of pernicious anemia or the bleeding gums of generalized pyorrhoea, an achylia will frequently be found.

Parasthesia of any description, and minor symptoms of spinal cord changes indicate lavage, even before lumbar puncture, since the combination of achylia and cord degeneration may pre-

cede the characteristic blood changes of pernicious anemia many years.

Many cases of chronic acute pulmonary tuberculosis have periods of achylia and it is during this period that the disease is most progressive.

It is difficult to formulate all other definite indications for gastric lavage, but within the last year, seven patients with abdominal scars, but with no relief of symptoms from the operation, have been found to have achylia. Were gastric lavage utilized in all cases of abdominal distress of uncertain origin, and especially in the legendary dyspepsia from chronic appendicitis, this latter myth would take its proper place with the Roc's egg and the Unicorn's horn.

The association of achylia and pernicious anemia has been attracting much attention and it is now rather generally accepted that the achylia stands in a definite etiological relationship to pernicious anemia. There is, however, no generally accepted theory of the pathogensis, although two main theories are offered. The one, that failure of the antiseptic action of hydrochloric acid allows the products of oral sepsis to directly invade the intestines and these produce hemolytic poisons; the other theory is based upon failure of proper process of proteolysis in the absence of gastric acidity, and the production of toxic substances from the protein molecule which are hemolytic. Much clinical and experimental evidence must be forthcoming before either theory can be definitely accepted.

In the continued discussing of Pavlow's theories of the physiology of the stomach, many of his ideas of gastric secretion are subject to attack, but his postulate of the antiseptic action of hydrochloric acid in the concentration found in the normal gastric secretion has been practically accepted by the physiologists, although full application of this fact has generally escaped clinical judgment.

To go back a step further and make inquiry concerning the cause of achylia, leads us at once to a wide field of speculation. In cases of symptom producing achylia, careful inquiry fails to determine a definite date of onset nor can an antecedent cause in the nature of acute infections be ascertained. Certain types of disease seem to have achylia which is without systemic influence of the condition here discussed. Achylia is an almost constant concomitant of carcinoma ventriculi—and only slightly less constant in cancer involving other portions of the gastro—intestinal tract. Gastritis, formerly so common in diagnosis as an euphonious confession of ignorance, has a true but small place in nosology, and a small percentage of cases of gastritis show anacidity.

Emotional suppression of hydrochloric acid is a common defense reaction of mankind. Each of us, in direct proportion to his poise, has been disturbed by this particular symptom from which recovery is more or less rapid and permanent. In the true neurotic, this, as other emotional reactions can be exaggerated almost beyond belief. Variations from complete achlorhydria to HCl 120, may be found at subsequent examinations. Whether emotional reaction eventually determine conclusive suppression of hydrochloric acid can scarcely be determined without long clinical investigation.

Congenital absence of hydrochloric acid may be assumed. In a recent investigation of gastric secretions in children from 6 to 15, Wright[1] has shown that 5 in 250 showed absence of acid.

Felsen[2] in studying the gastric function in epilepsy has demonstrated achylia in 15 per cent and hypochlorhydria in 11 per cent of his patients (mostly young men). 19 per cent of his controls showed achylia.

Eggleston[3] has recently reported the results of fractional analysis in 2730 cases; with 10 per cent showing persistent achlorhydria and 8.5 per cent with no free hydrochloric in the first hour.

Hurst[4] reports practically the same figures; 10.5 per cent in a series of 235 cases.

These and other reports, all tend to show the absence of hydrochloric acid in about 10 per cent of normal adults. My interpretation of these reports is somewhat different from that of the authors. Might it be suggested that lack of acid predisposes this 10 per cent group to many different clinical conditions. There is an accepted association between pernicious anemia and achylia and may I suggest that absence of acid is an important element in the development of many different conditions not previously associated with achylia.

In gastric intestinal infections, lack of acid may play an important part. Even in typhoid and cholera, there has long been a belief that

fear of the disease predisposes the individual to the disease, and his belief may have some foundation in fact since fear is one of the main causes of temporary diminution in acid secretion.

Certain of the general conditions in which the pathogensis is still a matter of argument should be studied from the standpoint of gastric secretion. The susceptibility of individuals living in the same invironment to pellegra, sprue and berri-berri, by a rather remarkable coincidence is about 10 per cent, which is the same percentage as achylia. There is an occasional report indicating achylia in this condition, and in the few cases observed personally, achylia is always found. Certain clinical aspects of hook worm disease are suggestive of achylia, and it would add greatly to the value of the hook worm survey if the percentage of achylia cases were established.

In the practice of the older clinicians, acidum hydrochloric dilutum, and acidum nitro-hydrochloricum dilutum, occupied a place with the iodides and were given extensively, particularly in cases where an exact diagnosis could not be made, and also as a "tonic," especially during convalescence, and the older clinicians obtained good results. Today, therapeusis is hindered by an array of scientific facts. Unless definite proof of efficacy is offered, drugs must not be exhibited. But in spite of accumulating negative scientific evidence of the efficacy of iodides, "potash" continues to be used with good results, in many conditions not dependent on syphilis or thyroid disturbance. The same thing holds true as to hydrochloric acid and it may also have a very wide field of application.

Carlson reports that in normal digestion, there is secreted with each average meal 700 cc of gastric juice with a hydrochloric acid concentration of 5/10 per cent, or 3.5 cc of hydrochloric acid. Dilute hydrochloric acid of the pharmacapoea is in 10 per cent concentration so it would require 35 cc of this preparation at each meal to approximate normal secretion and the administration of this amount is of course a physical impossibility. But in spite of the theoretical objection, from the patient's standpoint, therapeutic doses of hydrochloric acid are quite sufficient.

No more brilliant results of therapy can be demonstrated than the effects of proper doses of dilute hydrochloric acid in symptom producing achylia. In the average case, pyrosis, gas, distress after eating and diarrhea—in other words, the indigestion, is almost immediately relieved by acid. Theoretically, this is difficult to explain, since therapeutic doses canot possibly reach the concentration necessary for bacterial action. The more recent opinion of the physiologists deny the Pavlow theories of the influence of hydrochloric acid in controlling pyloric function. In spite of this, and other theoretical objections to the use of hydrochloric acid, good results are obtained. And there is no stronger therapeutic indication in medicine than the continued use of hydrochloric acid in all cases in which achylia is demonstrated by gastric analysis.

In the type of cases we have described, the administration of acid does not bring about immediate relief which is so striking in the ordinary case of symptom producing achylia, nevertheless, it should be exhibited in every case in which achlorhydria has been demonstrated. It is too much to expect here, as elsewhere restoration of degeneration as shown by leukoderma and a denuded tongue, but at the use of acid, we may hope to prevent further degeneration of this same type.

In diabetes, the problem is different. Much energy and long discussion has been spent on dietetic problems without the realization that the ideal digestive process does not exist in the individual with pancreative insufficiency. The absence of hydrochloric acid adds a different problem to the case, but this is a factor which can easily be corrected, and with correction, the dietetic control is much easier, and the theoretical glucose content of the diet may frequently be increased greatly to the benefit of the patient. In the adenoma type of goiter the disaster is delayed so long that it is difficult to draw conclusions but on the possibility that this ultimate heart toxine is in some way dependent on achlorhydria, acid should be administered as a part of the daily routine. In hyerthyroidism, with its greatly increased metabolic rate, the secretory activity of the stomach should be carefully watched and in those periods with dimin-

1. Wright; Archives of Internal Medicine, April, 1924.
2. Felsen; Laboratory Studies in Epilepsy, Archives of Internal Med., August, 1924.
3. Eggleston; American Med. Assn. Journal, July, 1924.
4. Hurst; Lancet, F. 17, 1-111, January, 1924.

ished secretion of acid, which generally coincide with periods of regression, acid should be administered to the tolerance of the patient.

Hydrochloric acid is likewise a valuable adjunct in the treatment of heart conditions. We should not be satisfied that digitalis ineffectual without determining the condition of gastric secretion and should order hydrochloric acid with digitalis when acid is absent. The results here are not as brilliant as in fibrillation. In this condition, with its 50 per cent remarkable victories, the proof of achlorhydria and the subsequent administration of the same amount of quinidine with hydrochloric acid will turn quite a large proportion of failures into victories.

There are many interesting scientific problems in connection with this question of acid secretion and adaptation, but these problems must be worked out by the physiologists who are not yet in agreement concerning many of the main points. For the clinician remains the question of the effect of loss of acid which deserves much more intensive study but let it be said that when achylia is found in any condition, acid should be given, and the results while not comparable with the results of the administration of the active principle in our best known deficiency disease—myxedema, nevertheless, brings satisfaction to the patient and the attending physician.

TRAUMATISM OF THE HEAD AND BRAIN IN CIVIL PRACTICE*

GARFIELD M. HACKLER, M. D.

Professor of Surgery, Baylor University, School of Medicine
DALLAS, TEXAS

The purpose of this paper is to present some of the conditions, treatment and end results of trauma of the head and brain which occur in civil practice. It is unnecessary to go into classification of head injuries mentined by war surgeons and others, as they are far too numerous.

Trauma of the brain, as of other soft tissues, is followed by increased blood supply, with consequent edema, which give rise to increased pressure of the cerebrospinal fluid. As the cranium is a closed cavity, this increase of pressure reacts on the delicate brain structure, incurring damage which will not be repaired so long as this increased pressure persists. The immediate result of a severe wound of the head —more especially a gunshot wound,—is a group of symptoms due to a widespread disturbance of function, affecting in varying degrees the whole cerebral and bulbar mechanism. Loss of consciousness of varying depth and duration, general muscular flaccidity, and disturbance of cardiac, respiratory and vasomotor action, are amongst the most striking of these general symptoms; but their exact pathological and mechanical basis is still imperfectly understood. Whatever this basis may be, the result is a suspension or disturbance of function from which recovery can take place spontaneously (except in patients who die outright or within a few hours). This is the stage of concussion or cerebral shock, with symptoms differing in no essential respect, from those resulting from penetrating wounds of the head, and with which is associated the stage of cerebral edema. The effects of this stage may be aggravated by the presence of effused blood, which either mingles freely with the excessive cerebrospinal fluid, or becomes more or less localized or circumscribed. Experience, in a number of cases, has shown that such hemorrhages are very rarely large enough, either at once to threaten life, or to demand immediate operative interference. While the possibility of extensive bleeding must be remembered, it must not be permitted to loom too large. When hemorrhage of any consequence does occur, it is quite likely to be basal or inacessible. It sometimes manifests itself after a duration of many hours, or even days, almost invariably giving rise to definite localized symptoms, superadded to those of the general compression. If the cerebral edema and swelling are severe, the symptoms may be relieved by lumbar puncture. Any progressive loss of function usually points to the necessity for affording free drainage of the damaged brain, as this loss may be due to a secondary inflammatory process, which may induce extension of the area with permanent damage. It is very difficult to secure efficient drainage of the damaged brain, because this tissue swells so easily in response to inflammation, while the extra room, which the cranial cavity is capable of affording, is very small in proportion to this swelling. The questions might then naturally arise, in some of these cases, is a decompression operation essential, or would lumbar puncture not answer the same purpose? We are not dealing with a permanent source of pressure like a tumor, but with a process which is self-limiting, provided the medulla

is not implicated. It is well recognized that in these conditions of cerebral contusion, the brain shows a marked tendency to absorb fluids and become edematous, and often the cerebrospinal spaces contain an excess of blood stained fluid. From observation it has become apparent that relief, sometimes, is afforded by a withdrawal of fluid. In cases of general compression, unless occasioned by progressive hemorrhage, relief by operation is not indicated, as the compression can usually be kept within bounds by repeated puncture. If loss of unction is due to shock effect, recovery will usually take place.

The following cases may very well illustrate the condition amenable to withdrawal of spinal fluid by means of puncture.

The first two cases were girls, one fourteen and one sixteen years of age. About ten days apart they were both struck by automobiles. Both were unconscious from three to four hours, and semi-conscious for twenty-four hours. There were no scalp wounds except some bruises. The neurological symptoms were nervousness, restlessness and tossing, nausea and crying, pulse rapid and weak. Twenty-four hours after the injury, a spinal puncture was done, withdrawing about thirty c. c. of fluid which was almost pure blood, expelled with much force at the beginning. The fluid was allowed to flow until it began to drip and the pressure was relieved. Each case presented about the same symptoms. X-ray revealed nothing except a small fracture of the occipital bone of the fourteen-year old girl with no displacement. A spinal puncture was done on each girl every forty-eight hours until the fluid cleared up and the pressure relieved. This required four different tappings in each case. They were both given a smart purge of calomel followed by a saline laxative. The head from the beginning was completely and continuously enveloped in ice. The patients were kept quiet in bed for six weeks, to prevent any future complications. During a period of about six months no complications have developed and both girls are attending school in the usual way. We know, however, that time enough has not elapsed to feel that they are safe from future trouble.

The third case was a child four years of age, who fell from a second-story porch, striking its head on the cement walk. The child was brought into Baylor Hospital profoundly unconscious, and remained so for twenty-four hours. He had a large hematoma on right side of head; a perpendicular fracture line could be easily made out; x-ray revealed large fracture on top of head extending perpendicular on left parietal bone, also on right parietal curving into the right orbit. There was no displacement of bone, but the fracture had a tendency to gap open. Lumbar puncture revealed the spinal fluid to be almost pure blood, which was expelled with much force. The patient was treated in the same way as the two preceding cases. The spine was tapped every forty-eight hours until the fluid cleared up and the pressure relieved. Ice caps were applied to the head and the bowels given attention. The child was under observation for about two years; though doing well, at intervals he displayed a slight nervousness.

If the effects of cerebral contusion are confused with shock, the condition may not improve until trepanation makes possible the evacuation, from the intracranial chambers, of the clots and pulped brain, which are the occasions of pressure symptoms. For illustration, there is the so-called bursting fracture (comminuted) with widespread cerebral contusion. These cases can undoubtedly be best relieved by a properly conducted decompression. Massive fractures of the skull may occur without actual laceration of the scalp. These are the cases where withdrawal of fluid is, probably, but a temporizing measure, and gives only a brief period of relief, for the former degree of tension is regained, in a very short time, by the accumulation of fluid. In such cases it is probably better to do a subtemporal decompression combined with lumbar puncture.

This condition may be illustrated by the following cases: A boy fifteen years old was struck on the right side of the head, by a wooden float, which fell from the top of a standpipe seventy-five feet in height. A part of the parietal and temporal bones were broken away, and two or three large fragments were driven into the brain tissue, causing it to bulge into space, with a loss of a small amount of brain substance. The boy was profoundly unconscious for twenty-four hours, bleeding at the nose and right ear. The pulse was almost imperceptible. He was not accessible to a hospital and was immediately operated on in the home. Bone fragments were removed from an area of three and one-half by two and one-half inches. The dura was closed incompletely and the scalp was brought together providing for drainage. The patient recovered rapidly and in three weeks he was out of bed. The end results were good. It has been fifteen or more years since the accident. He is married and is holding a good position in a railroad office and has had no complications resulting.

The second illustrative case was a Russian Pole, a baker by trade, 29 years old. He was attacked by an assassin, struck an the head by a blunt piece of iron which fractured the left malar and temporal bones. He immediately showed marked pressure symptoms, subnormal temperature, pulse 40 per minute, respiration slow, and he was profoundly unconscious. He was bleeding at the left ear, left eye and nose. These symptoms led me to believe that I had a basal fracture with pressure to deal with. The usual half-moon incision was made over the left temporal revealing a comminuted or bursting fracture. The fractured bone was removed from a space of about two inches in di-

ameter. A line of fracture was leading down by the ear into the base of the skull and probably into the middle fossa. The dura was seen to bulge as the bone was removed. When the duri was excised a stream of bloody fluid spurted some six or eight inches high, on account of intracranial pressure. Some small clots of blood were also removed from under the dura. The pulse began to improve immediately, even while under the anesthetic. The dura was partially closed with fine catgut, carefully leaving sufficient opening for drainage. A small drain, rubber protective, was placed in the angle of the incision and the scalp closed in the usual way. Ice caps were kept continuously on the head and the patient was given the usual laxative remedies. The rubber protective drain was removed in forty-eight hours. This man was semi-conscious for about seven days; stitches were removed on the eighth; no infection occurred; patient left hospital in eighteen days, contrary to my wishes. At the present time, eight years after the accident, he is well and actively engaged in his trade as a baker.

The great danger of infection of a compound fracture of the skull is impressive, particularly when the dura underlying the fracture has been torn. Abscesses may form on the cerebral hemisphere or metastasis may occur in other parts of the central nervous system. The following case will illustrate this condition in a practical manner.

This patient's age was twenty. This young man was working in the field with an inmate of Terrell asylum, who suddenly attacked him, digging him on the head twice, with a hoe. The blade penetrating the brain, produced a bad fracture. The bones were replaced in practically normal position by another doctor, but the scalp wound became infected from the dirty hoe. In seven days the patient developed a complete paraplegia, he was then brought to Baylor Hospital where he had a thorough examination with a consultant, neurologist. He could not feel the prick from a pin, nor move a toe on either foot. We discovered some tenderness about the seventh dorsal vertebra, which we decided was a transverse myelitis or a secondary infection causing the paraplegia. Under local anesthesia the scalp wound was cleansed and drained thoroughly. The spinal canal was punctured, withdrawing three drams of clear fluid with only slight pressure. Ice was ordered to head and the tender spot on the spine, and a purgative given. The young man remained in the hospital for about ten days when he began to have a slight movement of one or two toes. He was then removed to the Terrell Sanitarium and was under the treatment of another doctor. He recovered seemingly completely in about four weeks. He is well; no complications whatever have developed and he has been accepted in the navy.

In chronic brain injuries, with depressed fractures of the vault, epilepsy may result months or even years after the injury. This is probably due, not so much to cortical adhesions, depression of the vault or foreign body spicules, but to a permanency of cerebral edema, which produces a chronic increase of intracranial pressure. The following cases may well illustrate conditions found in this group.

Case one was a boy, aged sixteen years. At six years of age he was accidently struck on the head with an iron rod, which produced a puncture fracture, just to the right of the medium line, and in the region of the upper end of the fissure of Rolando. The exact time at which convulsions began was very indefinite, but he suffered with those seizures for six years. Then he was carried to another surgeon in a Texas city, and a small decompression operation was performed, using a transplant of a piece of fascia from the boy's thigh. The family stated that convulsions ceased entirely for eight months after the operation. The boy then began to have more severe and more frequent convulsions than formerly. He would have perhaps six or eight in one night. He would fall; his left arm and leg would become numb and contract; he would be thoroughly unconscious. He would sometimes shout aloud and curse, totally unconscious of his own behavior. These spells would last only a few minutes. When we first say him at Baylor Hospital he presented the following symptoms: the skin was cadaverous, pale and anemic looking; he was very stupid, inactive, both mentally and physically, and wanted to sleep most of the time; the appetite was poor; temperature 100, pulse 110, respiration 24; his bowels and kidneys were normal. On examination we found a depression on the head, a little to the right of the medium line. This was the remains of the former operation. The usual half-moon flap was made in the scalp, dissecting it away from the old fascia lata transplant, which had grown firmly to the dura, and also to the convolutions of the brain; the space was very much enlarged in the skull; the old transplant was dissected away from the dura, which was enlarged by cutting away a considerable amount of dura proper. Then, a very large transplant was taken from the fascia of the thigh, with all the fat possible, and placed in position over the brain, placing the fat next to the brain. The flap was tacked with three or four stitches of catgut to hold it in position. A few strands of silkworm gut were used for drainage, which were removed in forty-eight hours. The scalp was closed in the usual way. The wound healed by first intention, and the stitches were removed on the eighth day. For eight or ten days the boy had an occasional light convulsion, these growing lighter each time until they ceased entirely. He seemed to recover rapidly, was bright and had no trouble with his hand or leg. He gained flesh rapidly. I was able to follow this case for two years. During this period no trouble recurred.

The second case was a man eighteen years old, accidentally struck on the head with an ax, which crushed the skull for a distance of about two inches. In the course of a short time he developed epilepsy, convulsions occurred irregularly, but continued through some three or four years. When he first entered the hospi-

tal we found a rather large, robust and healthy looking young man. We could not elicit a clear-cut history from the family. We made a decompression operation, finding a piece of bone pressing on the brain. This was removed and scalp closed. He was free from epilepsy for about one year, when the convulsions returned, seemingly as bad as before. In two years from his operation he returned for further treatment. A second decompression was done, which was very much larger than the first; hemorrhage was very troublesome. A fascia lata transplant was taken from the thigh, with all the fat possible, placed in position, with fat resting on the brain. The flap was tacked in position in the same manner as the previous case and the scalp closed in the usual way. Patient recovered and left the hospital after two weeks. Three years later the young man's father told me his son was perfectly well and had been so since a short time after the operation. He was performing heavy manual labor and making a living for his family.

In Conclusion

First.—It has become apparent that in many cases of acute injuries of the brain, without a depressed fracture or hematoma, relief is afforded by withdrawal of fluid by lumbar puncture.

Second.—In cases of head injuries, perhaps more than any other department of surgery, it is of cardinal importance for diagnosis and treatment to be kept in close and living association with pathology. In every case it is essential, that the surgeon, before beginning the treatment, should make a determined effort to form the clearest possible picture of the actual condition within the skull of his patient.

Third.—The premise may be laid down that in any case of injury to the head, where there is a temporary unconsciousness which passes away, and subsequently returns, there is a hemorrhage, probably attended by slow accumulation. It not relieved, this finally causes death of the patient, or permanently damaging the brain, destroys his usefulness.

Fourth.—In cases with extensive injuries of the scalp and skull, with perhaps wide exposure of the brain, under proper treatment, the prognosis is always better than the extremely ugly appearance of the wound indicates.

Fifth.—A massive fracture of the skull, with or without laceration of the scalp, is best treated by a decompression operation combined with spinal puncture.

Sixth.—The ideal time for appropriate treatment of these patients having an increased intracranial pressure, is immediately after the cranial injury, when the shock has subsided.

TREATMENT OF BURNS*

Bernard E. Sayre, B.S., M.D.
Chicago

The medical literature abounds in methods for treating burns locally—paraffin, alboline, vaseline, carron oil, picric acid, acetic acid, light, heat, etc., are suggested—each author claiming certain advantages for his particular method. Not enough stress, however, has been laid on the systemic treatment, which to our mind is the important factor and which in many instances will determine whether a case will terminate successfully or otherwise.

At the Cook County Hospital of Chicago, a review of one hundred consecutive burn cases shows a mortality of 30 per cent. Even allowing that the Cook County receives burn cases of a more severe character than the average hospital, still such a mortality is entirely too high.

We have often observed that small superficial burns which did not appear at all serious, show the most surprising number of fatalities. As an instance, a case entered the Mount Sinai Hospital of Chicago in October, 1923, with apparently a slight singeing of the legs and feet. Carron oil dressings were applied and the boy sent home. The patient was brought back on the same day in severe shock and died within twenty-four hours from acute nephritis and hemorrhage from the bowels; while another case with a second degree burn of almost the entire body lived for three weeks.

Too much emphasis cannot be placed on the fact that *any burn case, no matter how slight, should be considered serious.* A burn covering one-tenth of the body surface is to be considered grave in nature and a burn of one-third of the surface area alarming. If two-thirds the body surface is burned, the case is nearly always fatal. Children stand burns very poorly. A burn about the face or genitalia is more serious than a burn in other regions. The degree or depth of a burn is not as important as the area involved, possibly because a deep burn necessarily obliterates many blood vessels and lymphatics and so there is less absorption of toxic products than in a superficial burn.

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*From the Surgical Department of Mount Sinai Hospital.

In order to scientifically treat any ailment, one must first understand the underlying pathology. Necropsies on burn cases reveal a parenchymatous nephritis, cloudy swelling of the liver, myocardial degeneration, an enlarged spleen with areas of necrosis, inflammatory changes in the duodenum with ulceration and formation of thrombi in the smaller blood-vessels. The blood picture in burn cases shows a high leucocytosis with an increase in the erythrocytes to as high as ten million. The coagulability and viscosity of the blood is greatly increased. These changes according to Drs. Dorrance and Bransfield[1] are due to three factors—toxemia, vasomotor changes and thrombosis.

That there are certain toxins released in the blood is unquestionable and has been proved by experimentation by Vaccarezza and others. The formation of small thrombi in the visceral circulation can be readily explained when we note the marked vasometer changes with fall in blood pressure. The lowered blood pressure induces a sluggish circulation. This factor and the increased coagulability and viscosity of the blood plus the introduction into the blood stream of toxic foreign materials, readily induce clotting in the small capillaries.

Death in burn cases is therefore caused by shock and by visceral degenerative changes caused by toxins and specifically by toxic parenchymatous nephritis. When one considers the cause of death, one can readily see that in the beginning the treatment of the burn locally is of very slight importance as compared to the necessity for strongly counteracting the systemic effects of such a burn.

A burned patient when first seen is usually in severe shock with a rapid pulse, dry skin, subnormal temperature and marked fall in blood pressure. The urine is scanty, highly colored, of high specific gravity and frequently albumin is present. There is a marked increase in the red and white count of the blood. Drs. Dorrance and Bransfield (previously quoted) state that one can form a prognosis of a case by the blood picture. A white count of 50,000 and a red count of 10,000,000 means that death is near.

Patients may survive for twenty-four or forty-eight hours but they are as yet not out of danger as on the third or fourth day there is a marked acidosis present with acetone and diacetic acid in the urine.

In the treatment of burns we follow a routine procedure. First, we quickly estimate the extent of the burn, for on the extent and severity of the burn depends the treatment to be followed. Below is printed a simple method worked out by S. G. Berkow[2] for estimating the percentage of body surface involved.

As soon as the extent of injury is noted, treatment is started immediately. Shock is combated by rest in bed with application of external heat. If the burn is extensive we immediately start pushing fluid by giving normal saline intravenously, the amount depending on the age and size of the patient. For a child six years old, 500 c. c. of normal saline can be given intravenously. This has a tendency to decrease the coagulability of the blood and also to decrease its viscosity. Morphin and atropine are given for pain as often as needed. As soon as shock is somewhat diminished, fluids and tap water is given per rectum. If the case is a mild one, we content ourselves with this method of giving fluids. If the burn is at all severe, we pass a duodenal tube and by this method large quantities of fluids are introduced. The tube is passed as far downward into the duodenum as possible and fluids may be given with a syringe every half hour or a Murphy drip may be connected to the duodenal tube and fluids given continuously. This method is far superior to proctoclysis as the rectum soon becomes irritated and fluids are not retained, while with the duodenal tube the amount of fluids which can be introduced is out of all proportion to that which can be given by any other method.

The advantages of giving fluids by this method are many. If the toxins excreted by the liver and thrown into the duodenum are the cause of the ulcerations of the bowel, alkaline fluids continuously flushing the duodenum will tend to dilute these toxins. The fluids also dilute the toxins in the blood to such an extent that they prove less irritating to the kidneys and other vital organs. The blood viscosity is lowered, coagulability is decreased and thrombi formation is less likely.

The importance of pushing fluids cannot be emphasized too strongly. Up till now this most important phase of the treatment has been overlooked by many physicians. A perusal of hospi-

1. Dorrance and Bransfield: Surgical Clinics of N. A., Vol. 2, page 299.

2. G. S. Berkow: Archives of Surgery, 8-138, part 1.

tal records of one hundred burn cases shows an average consumption of only twenty-five ounces of fluids per day. If we are to overcome the toxemia, and minimize the damage done to other viscera *we must push fluids.*

The local treatment of burns is fairly well covered in the literature. Each case, however, requires individual thought and treatment. The most simple method is to use liquid alboline sprayed on three or four times daily and the burn exposed to an electric light cradle. This method is simple, avoids dressings, takes up very little time and produces satisfactory results.

Summary: Much has been written about treatment of burns but a satisfactory treatment has not yet been evolved. In view of the facts that we do know about burns, however, we urge that more attention be paid to the general systemic treatment in which the following points are of prime importance:

1. Combating shock by heat, rest, intravenous saline.
2. Combat pain by giving morphin and atropine as often as necessary.
3. Pushing fluids preferably by the duodenal tube because of the great absorption in the small intestine and because of the large quantities which can be given by this method.

We have observed very satisfactory results by the use of the method stated in this paper, and it is hoped that a general adoption of the principles mentioned will lead to a reduction in the present high mortality in burn cases.

METHOD OF ESTIMATING BODY SURFACE AREA

Considering the entire body as 100 per cent.

Lower extremities, including the buttocks	38%
Upper extremities	18%
Trunk, including the neck	38%
Head	6%

For further accuracy—the hand is one-fourth of upper extremity and arm is three-fourths. The foot is one-sixth, leg two-sixths and thigh three-sixths of lower extremity. Anterior surface of trunk is 20 per cent. Posterior surface of trunk is 18 per cent.

In children up to twelve years a modification is necessary. The trunk is 40 per cent., upper extremities 16 per cent and for the head and lower extremities one should subtract the child's age from twelve and add the remainder to the adult proportions.

3357 W. Roosevelt Road.

CLINICAL RAMIFICATIONS OF THROAT INFECTIONS IN CHILDREN*

GUSTAV L. KAUFMANN, M. D.
CHICAGO

To us of the medical profession, regardless of whether we are general practitioners, surgeons, obstetricians, or any other specialist, the subject of acute throat or upper respiratory infections, ought to be of prime importance. No matter what line we practice, at some time or other we will be confronted with some of the ramifications of this infection. No one, young or old, male or female, ever escapes this infection. It is true that in many cases, especially in the well nourished adults, this infection passes over in a short time without any serious complications. Infants and children are the ones on whom the disease strikes most seriously. For the reason that infants and children are prone to have the more serious complications, my remarks will be limited to discussing this condition in infants and children.

What is meant by "upper respiratory infections?"

This condition is generally known to many of the laity as "colds," "running noses," "sore throats," and the like. To us of the profession it means an infection somewhere in the upper respiratory tract. We are, as yet, entirely at sea as to what organism this infection is due. It may be a simple influenza bacillus, staphylococcus, pneumococcus, or even a streptococcus or a mixture of any or all.

We know that these "colds" are very infectious and are transmitted on the slightest exposure. It is almost impossible to limit the infection and all who come in contact are a prey to its ravages. The most common method of spreading is by direct contact, from person to person, or the germ may lie dormant in the mucous membranes of the nose and throat and some conditions may lower the resistance of the individual and give the infecting agent a chance to spread and cause the damage. Exposure to extreme heat or cold, undernourishment, fatigue, loss of sleep, loss of appetite, are some of the predisposing causes.

In children the condition usually starts in with a "bang." An apparent healthy child will suddenly become irritable, fretful, refuse nour-

*Read before the Lee County Medical Society, Jan. 13, 1925.

ishment, and develop a temperature of 103 to 105. In obtaining the history from the parent we find that in the great majority of cases someone with a cold or upper respiratory infection has been in contact. Physical examination at this time will usually be negative, except possibly a dry red throat, not the tonsils, but the pharynx and the soft palate. The redness of the throat is so marked that one at times suspects a beginning scarlet fever. Some of these cases even have a marked erythema, making one even more suspicious of a scarlet, but the redness disappears very rapidly, there is an absence of the usual strawberry tongue and finally there is the absence of peeling.

In the majority of cases, the attack will last a couple of days and subside without causing any further disturbances. It is the complications and sequelae which we fear the most. It is difficult to offer a prognosis, because we do not know what may result. One child in the family may recover within twenty-four hours, while another child in the same household may have the most severe complications.

The two most common complications in our experience are otitis media and pneumonia. We believe that in most all severe infections of the upper respiratory tract, there is always an involvement of the middle ear. The infection extends through the eustachian tubes and causes an inflammation of the drum membrane. If the ears are examined with the otoscope, we will find a reddened ear drum. At this point, let me emphasize, most emphatically, that we should routinely, examine the ears of all children.

Most of the ear drums clear up, without causing any further trouble, but in some cases, we find abscess formations with bulging of the membrane, leading to a purulent otitis media. The complications of an otitis media, which we most fear are a mastoid involvement and a meningitis, the latter probably the most serious of an upper respiratory infection. We believe that in every ear involvement there is some meningeal irritation causing some of the symptoms of a meningitis, but this is not a true meningitis, but only a meningismus.

We have found on repeated spinal puncture in these cases that the spinal fluid was increased, but with a negative globulin and a very low cell count. These cases of meningeal irritation, as a rule need to cause no unnecessary anxiety, except where the infection is purulent. We repeatedly see purulent meningitis, either of the pneumococcus, streptococcus or the influenza type, follow an otitis media. It is in these cases that our prognosis is grave, as our treatment is of no avail.

In all cases of meningitis we must exclude the epidemic variety, for only in this type do we have a specific remedy. Just recently a baby was admitted to the hospital with a diagnosis of an upper respiratory infection. When we first saw the child it had a very high temperature with definite bronchopneumonia signs in the chest. Over night the child developed purpuric spots on the extremities, face and abdomen. Next morning there was some rigidity of the neck with slight spasticity of the extremities. Lumbar puncture gave us an increased fluid with a cell count of seventy-five, the lymphocytes predominating. Subsequent puncture showed a purulent fluid with a gram negative intracellular diplococcus. This child although having all the symptoms of an upper respiratory infection, also had an epidemic meningitis.

Another case of unusual interest came to our notice, just recently. An infant was admitted to the hospital with a diagnosis of hydrocephalus. Lumbar punctures did not relieve the pressure so we did a subdural puncture and removed seventy-five c. c. of a straw colored fluid. This was repeated several times. In obtaining the history, we found that the child, several months previous, had an upper respiratory infection, with meningitis. From our findings we concluded that the child had a pacchymeningitis, with increased intracranial pressure. Finkelstein has described many such cases.

The second serious complication is a mastoiditis. This condition is fairly frequent. We find that mastoid infections seem to run in epidemics. Some years we seem to see more cases than in other years. This may be due to the selectivity of the microorganism.

The second most frequent complication of upper respiratory infections is pneumonia, not the lobar pneumonia with marked dullness, bronchial breathing, crepitant rales, and crisis at the end of the seventh, ninth or fifth day, but rather an indefinite bronchopneumonia. We have seen very few frank cases of lobar pneumonia, during the past years, not only at the Children's Memorial Hospital, but also in private practice. When

we did diagnose a lobar pneumonia, an autopsy usually showed us our mistake. By far the greater proportion of pneumonia in children belongs to the bronchopneumonia group.

It is sometimes very difficult to demonstrate a bronchopneumonia on physical examination. We may have a child whose entire chest may be filled with fine rales, yet no dullness or bronchial breathing. In other cases we can isolate the spots with ease, giving all the cardinal symptoms of pneumonia. Autopsy on these cases does not reveal the true pathological condition which we expect in pneumonia. The lesions found are only disseminated islands of consolidation, usually most marked in the dependent portions of the lungs and around the hilus of each lung. The spots generally vary from pin head size to pea, but the solid areas are densely packed cellular masses of lung substance without distended alveoli, resembling atelectasis. Elsewhere occasional polynuclear leucocytes are present with some serous exudate. We have seen very few cases of empyema during the past few years.

Another common complication is the glandular enlargement, not only the glands of the neck, but also of the mediastinum and of the abdomen. In the majority of cases the glands are only swollen, but in some cases abscesses are formed. Probably the most distressing abscesses are those of the retropharynx.

It is a good practice in all cases where there is some difficulty in breathing and swallowing to palpate the retropharynx. In many cases we only get a boggy feeling, but in some cases, typical signs of an abscess. In the latter condition early incision will usually give marked relief. All that is necessary is to use a sharp hemostat, puncture and open the forceps. Sometimes a second incision is necessary.

As to abdominal gland enlargement, Brennemann some years ago demonstrated that enlarged abdominal glands may cause acute abdominal symptoms. The presence of a fulminating type of acute upper respiratory infection, that is where the throat is very red, and associated with severe cramp-like pains in the abdomen, usually of the right quadrant and even frequently associated with muscle rigidity make the clinical differentiation between a true acute or subacute suppurative appendicitis most difficult. Far too many cases of ruptured appendices, even under the most expert and hospital supervision, are missed entirely, as is the reverse—the diagnosis of appendicitis in the presence of an acute upper respiratory infection.

Some of the less frequent complications are sinus infection, nephritis and pyelitis. It is of interest to note that many cases of nephritis are due to a sinus infection. Recent investigation showed that in many cases of nephritis, when all other sources of infection were eliminated, a sinus which had a chronic infection was the sole cause of the nephritis, which disappeared when the sinus was cleared up.

Probably one of the earliest symptoms is vomiting. This conditions is very distressing and one of the most difficult to handle. Many men consider this as a gastro-enteritis, due to an enteral infection, whereas in reality it is a parenteral infection. Any infection, in any part of the body may cause a gastro-intestinal disturbance. Some writers speak of this as a winter influenza, when in fact it is only a symptom of an infection in some part of the body. In these cases it is not advisable to institute a starvation regime. What these children need is fluid, and plenty of it. They require constant attention. If large amounts of fluids are given, they vomit, so by far the best method is to give teaspoonful doses every fifteen to thirty minutes, of an ice cold solution.

Our favorite solution is to give a teaspoonful of sodium bicarbonate and one tablespoon of Karo corn syrup in a glass of water, and then have the mother or nurse give a teaspoonful of this solution. As soon as possible we must give food. In very young children we give diluted skimmed milk, albumin milk or lactic acid milk with a 2 per cent. dextro-maltose, in small doses every two hours, while in older children we give cereals, crackers, skimmed milk and fruit juices.

In the hospital and at home, under the proper supervision we use the nasal drip. A small catheter is passed through the nose, a short distance into the esophagus, fastened with adhesive tape to the face. Using the Murphy drip, the feeding can be given over an indefinite period of time.

It is not necessary to give a cathartic as a rule, because by the time we see the child, the intestinal tract has been emptied through frequent watery stools.

In some cases where the child absolutely re-

fuses to retain any of the fluids as described above, we must give fluids by hypodermoclysis. We have used the continuous method of giving fluids under the skin, in some cases. Two needles connected with a "Y" using both breasts were employed. We find that we can give larger amount of fluids over a longer period of time, by this method, than if we attempt to give all the fluids at once.

A few words as to treatment: Very often this infection is ushered in with a convulsion. Now a convulsion in a child very often means the same thing as a chill in the adult. When the temperature in some children reach a certain height, they will have a convulsion. Most parents and some physicians treat a convulsion by immersing child in a hot mustard bath. This adds insult to injury, because instead of reducing the temperature quickly, it just increases the same. We must reduce the temperature at once, and the best method is to either give a cold pack or a cold bath. As long as the temperature is reduced there is little danger of a convulsion.

As to medication, some form of the salicylates is undoubtedly the best. We can give small doses of acid acetylsalicylic in syrup of orange at two hour intervals. As these cases are very infectious, we ought to insist on isolation, and rest in bed. Many mild cases, when allowed to romp about or crawl on the floor, will have the most severe complications. Local application, to my mind, is not very efficacious. Where there is difficulty in breathing due to nasal obstruction a 10 per cent. adrenalin in camphor water gives some relief. I do not belief that solution of the silver salts shorten the attack. In fact, any nasal instillation may cause the infection to reach the eustachian tubes. Where there is an abundant nasal secretion the suction pump gives some benefit.

I speak very strongly against the early incision of the drum membrane. I believe more harm than good is done, in incising a red membrane. As a rule, early instillation of a 5 per cent. phenol in glycerine, every hour or two, will usually abort an abscess. If there is a distinct bulging, with abscess formation, paracentesis will be of benefit.

As to the other complications, they must be treated as they arise. Give plenty of food, fresh air, stimulating with spiritus frumenti, caffeine-sodium benzoate, camphor in oil is practically all that we can do.

In the *Illinois Health News* of October, 1924, we read the following report: "The pneumonias caused 7,392 fatalities in Illinois last year. Out of 3,153 deaths attributed to bronchopneumonia, 1,097, a little more than one third, occurred among infants less than one year of age."

"Influenza caused 2,586 deaths in Illinois last year. . . . An even three hundred deaths among infants, less than one year of age, were attributed to influenza, and an equal number among those between one and ten. This makes six hundred from these in the first decade of life."

A disease whose complications have such a high mortality ought to be of prime interest to every thinking medical man.

645 Fullerton Parkway.

LUNG ABSCESS. REPORT OF A CASE*

B. Chapman, M. D.
CHICAGO

I wish to present to you a case of lung abscess that was under my observation five weeks, from October 14 to November 19, 1924. The case is interesting from the standpoint of diagnosis, etiology and treatment.

History.—Miss E. B., aged 22, office worker, was admitted to the Frances Willard Hospital on October 14, 1924. She complained of pain in the chest, cough, spitting of blood and fever. She had been sick for three weeks. In the beginning she had chills, fever and cough and was in bed for three days. She then returned to work. Ten days before admission she became sick again and this time was confined to bed. Temperature was hectic in type, with an afternoon rise. Six days after the onset blood appeared in the sputum. For the first two days there was only a trace of blood but it increased in amount during the next two days. The pain in the chest was increased by respiration and during cough. The cough was severe, recurring every five to ten minutes and disturbed her sleep at night.

The patient had had measles, diphtheria and pertussis. Tonsils were removed three or four years previously. There was one case of tuberculosis in her family with which she was in contact.

*Read before the Russian Medical Society, Chicago 1925.

She began to menstruate at 14 years, every four weeks and five to six days in duration.

Physical Examination.—On admission temperature was 104, pulse 116, and respirations 30. Her appearance was that of a very sick person. Skin was moist from perspiration. She was confined to bed.

Throat: Tonsils were removed. Teeth were in good condition. Tongue was coated.

Neck: There was an enlargement of the thyroid gland and the cervical glands were palpable.

Chest: The heart tones were rapid; there were no murmurs and the heart borders were normal.

Lungs: The respiratory movements were diminished on the right side. There was dullness in the right upper lobe anteriorly under the right clavicle, extending to the third intercostal space. Posteriorly the dullness was in the right upper, extending to the upper border of the scapula. On auscultation there was harsh breathing and fine râles in the right apex and in the middle lobe of the lung. Blood pressure was 105 Mm. Hg. systolic.

Abdomen: The abdomen was distended. The liver and spleen were not palpable.

Extremities: There was no edema of the legs and no swelling of the joints.

Nervous System: No changes were noted. The pupils reacted to light and accommodation. Patellar reflexes were normal.

Laboratory Findings.—The urine was negative for albumin, sugar and casts.

Blood examination showed hemoglobin 70 per cent.; red cells 3,400,000; white cells 26,700, of which 78 per cent. were polymorphonuclear neutrophils, 17 per cent. small lymphocytes and 5 per cent. large lymphocytes. The Wassermann was negative, as was the blood culture.

Sputum was yellowish green in color and had a fetid odor. Blood was present. It was repeatedly negative for Koch's bacillus. Microscopically many leucocytes, neumococci and streptococci were present. The sputum was also analyzed for spirochetes (5 per cent. carbolfuchsin and Fontana's stain) and after repeated examinations I succeeded in finding them together with fusiform bacilli.

Radiographic Examination.—Three examinations were made, the first one on October 2 showing a circumscribed shadow at the hilus in the right lung. The second one showed a circumscribed shadow and formation of a cavity, the size of a silver dollar. The walls of the cavity were thickened. There was no evidence of fluid in the pleural cavity. The third radiogram taken on November 8 showed the shadow increased in size, the formation of two cavities and suspected fluid in the pleural cavity.

Diagnosis.—The history and the physical findings, the sudden expectoration of a great deal of sputum with a fetid odor, the septic temperature, the findings on percussion and auscultation and radiographic examination spoke for an abscess in the right lung. The same findings will occur with tuberculosis of the lung, but the absence

Fig. 1.—A circumscribed shadow at the hilus in the right lung. (Lung abscess.)

of tubercle bacilli in the lung and the radiographic findings (circumscribed shadows at the hilus in the right lung) spoke against tuberculosis. The possiblity of pneumonia was taken into consideration, but there is no hemorrhage from the lung in pneumonia cases. However, abscess of the lung causes some inflammatory changes in the lung. The course of the disease indicated that the abscess was spreading from the upper lobe in the right lung to the middle and lower lobes in the same lung. The question of empyema was also considered. The aspiration needle was used three times for diagnostic purposes without any result and only once was found 5 c. c. of pus in the sixth intercostal space on the scapular line.

Microscopically, fusiform bacilli were found in

the aspirated pus. These findings are not sufficient to diagnose empyema in the lungs. It may be that the pus was withdrawn from the abscess itself. In general, no aspiration in the pleura should be made in lung abscess. Sometimes the aspiration is complicated by shock, cerebral embolism or empyema in the lung.

Pathogenesis.—By looking up the literature it was found that 20 to 30 per cent. of lung abscesses are complications after tonsillectomy (the swallowing of infectious material and foreign bodies). Richardson in 1912 and Bassin in 1913 had 16 cases following tonsillectomy.

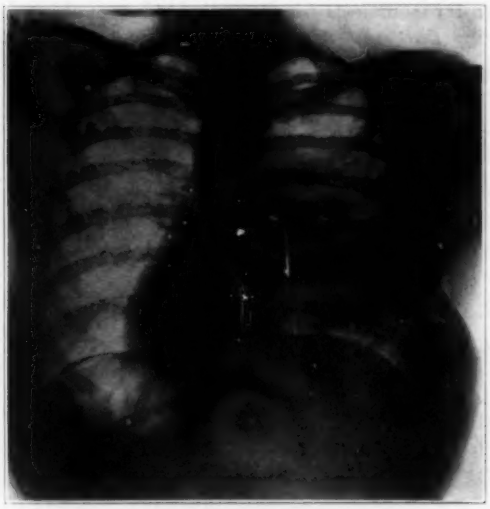

Fig. 2.—The shadow is increased in size and bronchopneumonic focus in the lower lobe of the right lung. (The process is advancing.)

Manger had 9 cases in the Mt. Sinai Hospital. Whittemore reported 32 cases, 17 after tonsillectomy. Singer-Graham published 39 cases, 29 per cent. after tonsillectomy. Moore stated that lung abscess occurs once in every 3,000 tonsillectomies. However, at the Mayo Clinic in a series of 100,000 tonsillectomies there was not a single case of lung abscess. Pilot and Davis reported 40 cases, 10 after general anesthesia, 6 after tonsillectomy, 2 after hysterectomy, 1 after appendectomy and 1 after herniotomy. W. B. Lennon from the Mayo Clinic published 81 cases of lung abscess, 31 after pneumonia, 19 after influenza and 12 after tonsillectomy.

The second cause of lung abscess is pneumonia. Nine hundred forty-eight cases of pneumonia were admitted to the Rockefeller Institute from 1914 to 1919 and only 9 cases were complicated with lung abscess. Frankel published 1,200 pneumonia cases and found lung abscess in 2 per cent. Winner in a series of 22 cases found 22 per cent. occurring after tonsillectomy, 23 per cent, after pneumonia, 9 per cent. after appendectomy, and 4 per cent. after measles.

In the case herewith presented the abscess is a complication of a severe influenza, because the patient got out of bed and returned to work before complete recovery had occurred. The immediate cause of the lung abscess in this case was the spirochete and fusiform bacilli mixed with streptococcus infection. Pilot and Davis described in detail the pathogenesis of lung abscess and the spirochetes and fusiform bacilli as the immediate cause of necrosis in the lungs.

Normally we find spirochetes in the gums around carious teeth, also in cryptic tonsils (80 per cent.). In the nasopharynx the fusiform bacilli are found in 32 per cent. and the spirochetes in 5 per cent. of normal cases. They are gram-negative bacilli, staining with 5 per cent. carbolfuchsin and Fontana's stain, anaerobes.

Threatment.—To stop the hemorrhage from the lung the patient was put to bed and a light diet ordered. She was given hypodermically morphine 1/8 of a grain and atropin 1/150 of a grain. Hemostatic serum or thromboplastin hypodermically was employed. Codein 1/4 of a grain was given by mouth. Locally, an ice bag was applied to the chest.

We made an attempt to cure the abscess by intravenous injections of neoarsphenamin (Pilot), as neoarsphenamin is a specific remedy for spirochetal infection. Three doses were given: 0.3 Grm; 0.45; 0.6. After the first intravenous injection the temperature dropped to normal, the patient felt better and the cough lessened. But the improvement was only temporary. After a few hours the temperature rose again to 104 degrees and the hemorrhage recurred. The same results were obtained with the second and third intravenous injections. The patient died suddenly after a severe hemorrhage.

Pilot and Davis had good results with neoarsphenamin in the treatment of lung abscess. He used it in 10 cases with satisfactory results in 7. The results depend also upon the associated infection (streptococcus hemolyticus and viridans) and whether or not there is complete or incomplete drainage. To increase the drainage

the patient should be placed in the most favorable position.

Surgical Treatment.—Some authors treated the lung abscess with artificial pneumothorax. Goldberg and Biesenthal published 3 cases treated by pneumothorax with satisfactory results. Winner used pneumothorax in 6 of his 22 cases with good results.

Contraindications against pneumothorax are adhesions of the pleura and the location of the abscess near the pleura. In this case pneumothorax was not used because of the adhesions of the pleura.

Some authors used the bronchoscope to remove foreign bodies and the pus caused by them from the lungs.

Resection of a rib was used in cases of long duration when there was no other way to drain the abscess.

I wish to express my thanks to Dr. Frederick Tice for his help in diagnosing and treating this case.

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THE EDITOR NEEDS BREAD WITH HIS SHOES ON

It is reported that one of the fastidious newly married ladies of this town kneads bread with her gloves on. This incident may be somewhat peculiar, but there are others. The editor of this paper needs bread with his shoes on; he needs bread with his shirt on; he needs bread with his pants on; and unless some of the delinquent subscribers of this "Old Rag of Freedom" pony up before long, he will need bread without a damn thing on, and Wisconsin is no Garden of Eden in the winter time.—Melrose (Wis.) Chronicle.

HAD RELATIVES IN ALL THREE PLACES

"Pass?" asked the sentry.

"Ain't got no pass."

"Countersign?"

"Countersign! Don't know nuthin' 'bout no countersign."

"Well, you can't leave camp without the countersign."

Rastus thought it over and his grievances mounted high within him. The time had come for action. With a swift motion he produced a razor from his puttee and flourished it open under the sentry's nose: "Lissen, Mistuh Sentry, Ah don't want to staht no trouble, but —Ah got a mother in heaven, a father in hell, and a gal in this yeah town, and Ah'm shuah gwine to see one of dem tonight!"—Iowa Magazine.

THE MUSINGS OF A HOSPITAL PATIENT*

"When the last examination is ended,
When the last special test has been made;
When the doctors and nurses have vanished,
And every part of me X-rayed,—

"I shall rest—and Lord I shall need it,
Lie down for an eon or two,
Till the Master of all good workmen
Shall put me together anew.

"And don't you think I'll be happy?
I'll sit in my old chair;
I'll hike, and dig, and visit
And go when I want—and where.

"And there'll be no hypodermics,
No tablets, nor drops, nor pills,
And there'll be no occasion for doctors
'Cause I won't have any ills.

"And only the birds shall scold me,
And only the breezes blame,
When the sun rises high in the morning,
And sets in the evening's flame.

"For Health will be mine, and the nightmare
Of hospitals, drugs and pain
Will be over because it is springtime
And I will be home again!"

THE SIGN OF GOOD SOUP

Biltmore Waiter—"Want soup?"
Bill Rogers—"Is it good soup?"
Waiter—"Sure; fourteen carrot."—Exchange.

THE EDITOR ACTUALLY SMILED AT THIS ONE

"Bill," said a sailor, looking up from his writing, "do you spell 'sense' with a 'c' or with an 's'?"

"That depends," replied his friend. "Do you refer to money or brains?"

"Ah, I don't mean neither of them two," was the reply. "What I want to say is, 'I ain't seen him sense.'"

Society Proceedings

ADAMS COUNTY

September 14, 1925. This was a regular meeting of the Adams County Medical Society held at the Chamber of Commerce, the meeting being called to order at 8:30 P. M. by the president. Attendance was 24 including two guests.

The president announced that a telegram had been received today from Dr. M. F. Engham of St. Louis, who had been invited to address the Society on a Dermatological subject, to the effect that he had been

*Written by a patient in a Chicago hospital who had a long and painful illness. She wrote it to amuse her family. Physicians may enjoy reading it.

taken ill and would not be able to come. Dr. C. K. Gabriel gave an interesting case report that was discussed by the membership. Dr. C. E. Ericson was not present to give his report which had been assigned him. Dr. E. B. Montgomery assisted by Dr. Harold Swanberg presented an interesting volunteer case report on a case of "Diverticulum of the Stomach."

The secretary read the minutes of the July and August meetings and they were approved as read with the addition that Dr. Calvert was extended a vote of thanks for entertaining the Society at the July meeting. The Secretary read a letter of thanks that had been received from Mrs. Brown and Edwin Brown for the flowers that had been sent to Percy Brown's funeral. Dr. W. Williams briefly reported an interesting case of Metastatic Carcinoma that had been recently observed. Dr. Wells spoke about the desirability of the medical Society using the columns of the newspapers. The Secretary stated that he had fully investigated the Tulsa newspaper campaign and was in possession of full information to conduct a campaign in a similar manner that was conducted in Tulsa if the Society wished to do it. Dr. Wells made a motion that a committee of three be appointed by the Chair to look into the matter of advertising by the Society. The Chair appointed Drs. Wells, Koch, and Swanberg to serve on this committee.

The meeting adjourned about 9:30 P. M.

Dr. A. N. George of Boston, Mass., Prof. of Roentgenology, Tufts Medical College, will address the society on October 12th. The subject will be, "The Present Status of Gastro Intestinal Examinations by X-Ray."

HAROLD SWANBERG, M. D.,
Secretary.

GREENE COUNTY

The Greene County Medical Society met in regular session under the auspices of the Kane physicians at "Mid-City," on Friday, Sept. 11, 1925, for the program as previously announced, and the entertainment furnished by the Amoma Sunday School Class of Kane, provided by the generosity of the Kane Doctors, and a magnificent dinner of fried chicken and everything that goes with it and was nicely served by the ladies.

After partaking of this excellent dinner, the meeting was called to order by the President, Dr. Wm. H. Garrison. The minutes of the previous and last meetings were read and approved and all business appearing was deferred until the next meeting. Twenty doctors were present.

Dr. Carl E. Black of Jacksonville delivered an excellent address on the professional status of the physician, those who had acquired professional skill; he told of a visit to Pittsfield recently where memorial was held in honor of the old-time Doctor to Pike County and a marker was also dedicated on the home site of the first physician in Pike County. The Doctor stated that the physicians would have to take up this matter themselves and see to it that those worthy of emulation by their accomplishments should be memorialized. He then discussed the cancer question, advised early operation in all cases of small tumors. Discussion by Doctors Burns, Smith, Barclay and Fenity.

Miss B. C. Keller of Chicago, Director of the Lay Education Committee of the Illinois State Medical Society, gave a very interesting address on the work being done by them for the betterment of the regular physicians of Illinois. She is a splendid speaker.

Dr. Burns, who had very recently returned from a trip around the world, requiring more than a year, gave an interesting reministic talk on his travels, a description of physicians and hospitals. He regarded them as great doctors, very exacting and doing great work.

Dr. Newcomb gave an interesting talk on sanitation. "Mid-City," so called, is located on the state hard road about midway between Carrollton and Kane. The grounds and the large rustic built pavilion is a beautiful place for meetings. The pavilion and grounds are nicely kept, but the wells of water are in bad condition. Water from these wells is unfit for drinking, though evidences of having been made use of, probably by campers. The censors selected Roodhouse for the next regular meeting on Friday, Dec. 11, 1925.

Drs. O. L. Edwards and F. H. Russell, censors, being absent, the president appointed Drs. A. R. Jarman and A. K. Baldwin censors pro tem. A rising vote of thanks was given the doctors of Kane for their generous hospitality, and to the young ladies of Kane for their splendid dinner and service.

On motion adjourned.

W. T. KNOX, Secretary.

ROCK ISLAND AND SCOTT COUNTIES

Through the courtesy of the board of trustees of Pine Knoll Sanitarium, the Rock Island and Scott County Medical societies held a meeting at the Sanitarium Sept. 8, 1925. A very fine program was given, and also a sumptuous dinner. Dr. Carl Henry Davis of Milwaukee, Wis., gave an address on "The Diagnosis and Treatment of Non-Malignant Diseases of the Cervix Uteri." Dr. Lewis Cole gave an address on "Gastric Ulcers," Drs. B. J. McCarthy of New York and J. F. Weber of Davenport gave interesting talks on "Clinical Observation while in Europe."

During the business session the following resolution was read and passed.

WHEREAS, The American Birth Control League is a lay organization essentially sociologic in its aims and programs, and,

WHEREAS, The American Medical Society, the Illinois State Society and the Rock Island County Medical Society have consistently opposed the bad

social judgment and the bad ethics exhibited by lay organizations entering or dictating the practice of Medicine;

THEREFORE BE IT RESOLVED, That the Rock Island County Medical Society decline to sanction the program of the Birth Control League in its establishment of local agencies of sociology practice, and,

BE IT FURTHER RESOLVED, That members of the Rock Island County Medical Society be and hereby are, instructed that affiliation in practice with the above mentioned lay organization does constitute an unethical association, and is unprofessional conduct, and,

BE IT FURTHER RESOLVED, That the New York office of the Birth Control League be informed of this action and that this action be accorded due publicity among the medical profession and elsewhere.

HENRY FOWLER, M.D.,
Secretary.

Marriages

MAURICE ALBACH to Miss Miriam Pearl Silverman, both of Chicago, August 16.

WILLIAM CHARLES BUCHBINDER, Chicago, to Miss Louise May Woolf of Highland Park, Ill., July 18.

JOHN F. RUNNELS, Chicago, to Mrs. Emma Armstrong of Fort Wayne, Ind., recently.

Personals

Dr. Ira Johnson has been appointed county physician of Lawrence County.

Dr. Duke R. Gaskins, Harrisburg, has been appointed chief surgeon and manager of the Union Hospital, West Frankfort.

Dr. James E. Bellinger, Collinsville, addressed the Madison County Medical Society, Edwardsville, September 2, on "Medicine in the Orient."

Alden B. Dawson, Ph. D., associate professor of anatomy, resigned his position with Loyola University School of Medicine to accept an appointment as associate professor of biology, New York University, New York.

Dr. Paul E. Greenleaf has been appointed district surgeon for the Illinois Central Railroad at Bloomington, to succeed the late Dr. Franklin C. Vandervort.

Dr. Charles Harold Sihler has been appointed county physician for North and South Litchfield; Dr. Charles H. Lockhart, county physician for Witt; Dr. William O. Fish for the village of Fillmore; Dr. Edmund T. Douglas, Hillsboro, for Hillsboro Township, Schram City and the county farm; Dr. Jesse M. Hoyt, Nokomis, for Winona, Coalton and Nokomis, and Dr. Robert N. Canaday for Rountree and Irving townships.

News Notes

—The Alton County Medical Society held its annual dinner, August 16, at the Rock Springs Country Club.

—It is reported that Dr. Louis H. Hayes, Alton, pleaded guilty, September 9, to violation of the Harrison Narcotic Law and was sentenced by Judge Fitzhenry at Quincy to five years in the penitentiary and to pay a fine of $2,000.

—Five motor caravans, each with a medical and technical staff, left Springfield recently on a tour of instruction in public health to be given at the leading county fairs. Each unit is equipped with motion pictures and exhibits and prepared to perform physical examinations and medical tests.

—The annual dinner of the Chicago Medical Society will be at the LaSalle Hotel, 6:30 p. m. October 14, when the new officers will be installed. Dr. William Allen Pusey, former president of the American Medical Association, will act as toastmaster. The dinner will be informal ($3 per plate). Dr. Emmet Keating is chairman of the committee on arrangements.

—The Odontographic Society of Chicago announces a debate, October 12, in which Weston A. Price, D. D. S., Cleveland, will present the affirmative, and John P. Buckley, D. D. S., Los Angeles, the negative side of the subject: "Resolved, That Practically All Infested Pulpless Teeth Should Be Removed." The debate will be in the Grand Ball Room, LaSalle Hotel, at 8 o'clock; there will be a dinner at 6 o'clock, to which members of the medical and dental professions are invited. Two dollars per plate.

—At a meeting of the council of the Illinois State Medical Society in Chicago, September 9, resolutions were adopted calling for the appointment of a commission of experts, to be paid by the state, to sit in cases in court in which the plea of insanity is made. A committee comprising Drs. Jacob C. Krafft, Chicago; Harold M. Camp, Monmouth, and John R. Neal, Springfield, was appointed to study the question of "insanity defense," to confer with the Illinois and Chicago bar associations and the American

Institute of Criminology, and to make a report. The council considered, it is reported, that the employment of psychiatrists and experts in criminal cases should be taken out of the hand of both the state and the defendants.

—Surgeon General Hugh S. Cumming, Washington, D. C., has detailed Dr. Oswald E. Denny, Chief Medical Officer, United States Public Health Service, U. S. Marine Hospital No. 66, National Lebrosarium, Carville, Louisiana, formerly in charge of the Culion Leper Colony, Culion, Philippine Islands, to come to Chicago on November 18 next, and, in collaboration with Dr. John Ritter, clinical instructor and lecturer on tuberculosis at Rush Medical College, to present at the Joint Meeting of the Chicago Medical Society with the Chicago Tuberculosis Society a joint paper on the "Noticeable Parallelism and Similarity Between the Two Chronic Diseases, Leprosy and Tuberculosis," and an extended lantern slide demonstration, illustrating leprosy from its incipiency to the far advanced stages.

—Scholarships on the Oliver-Rea Foundation for graduate study in Medicine are available at the New York Post Graduate Medical School and Hospital. Inquiries should be addressed to the Dean, 301 East Twentieth Street, New York City.

—Dr. A. C. Ivy has been appointed Professor of Physiology and Chairman of the Division of Physiology and Pharmacology in Northwestern University Medical School. Dr. Carl Dragstedt has been elected Professor of Pharmacology in Northwestern University Medical School. The following promotions have been made in the faculty of Northwestern University Medical School: Drs. Newell C. Gilbert and William H. Holmes have been made Associate Professors, and Martin R. Chase, Walter H.Nadler, Lawrence H. Mayers and Leon Unger, Assistant Professors, of Medicine. Dr. Loyal E. Davis has been promoted to the rank of Association Professor of Surgery and has been made Director of the Department of Surgical Research and Chief of the Department of Neuro-surgery. Drs. Jacob R. Buchbinder, Sumner L. Koch, Paul B. Magnuson and Victor L. Schrager have been made Assistant Professors of Surgery; and Drs. Carl F. Bookwalter and Ellison L. Ross, Assistant Professors of Otology.

Deaths

Stephen S. Barat, Chicago; College of Medicine and Surgery, Chicago, 1903; medical director, Public Life Insurance Company; aged 58, died, September 15, of cerebral hemorrhage.

Cassidy Chenoweth, Decatur, Ill.; Rush Medical College, Chicago, 1869; aged 77; died, August 22, at the Decatur and Macon County Hospital, of carcinoma of the throat.

Walter Amazia Domer, Wabash, Ind.; University of Illinois College of Medicine, Chicago, 1901; member of the Indiana State Medical Association; aged 52; died in August, at a sanatorium in Indianapolis.

Francis Marion Fowler, Elizabethtown, Ill.; Vanderbilt University Medical Department, Nashville, Tenn., 1896; aged 66; died, July 8, at a sanatorium in Memphis, Tenn., of angina pectoris.

Raymond Regan Harrington, Chicago; Northwestern University Medical School, Chicago, 1912; member of the Chicago Ophthalmological Society; aged 35; died, August 5, of chronic nephritis and edema of the lungs.

Charles Paul Sampsell, Evanston, Ill.; Jefferson Medical College of Philadelphia, 1888; aged 68; died, August 20, of chronic nephritis and heart disease.

George M. Tyrrell, Freeport, Ill.; College of Physicians and Surgeons, Keokuk, 1888; member of the Illinois State Medical Society; aged 63; died, August 26, of heart disease.

Franklin Cady Vandervort, Bloomington, Ill.; Rush Medical College, Chicago, 1881; for three years president of the McLean County Medical Society; formerly county physician and city health officer; member and at one time president of the board of education; aged 67; died, August 29, as a result of a streptococcus infection.

James Hamilton Walker, Effingham, Ill.; Barnes Medical College, St. Louis, 1896; aged 59; died suddenly, in August, of heart disease.

Charles O. Watson, Smithfield, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; member of the Illinois State Medical Society; aged 55; died, September 2.

John Edwin Rhodes, professor emeritus of laryngology and otology at Rush Medical College, died at his home in Chicago, September 2, aged 74, of angina pectoris and pernicious anemia. Dr. Rhodes graduated from the old University of Chicago in 1876, and for a time engaged in business in California. He then took up the study of medicine, graduating at Rush Medical College in 1886, and almost at once became connected with the faculty. He was for many years professor of otology and laryngology and college historian, collaborating with the late Dr. Norman Bridge in writing a history of Rush Medical College. He was formerly on the staffs of the Presbyterian, St. Mary's and Nazareth hospitals, and the Home for Destitute Crippled, and was a member of many special otolaryngologic societies.